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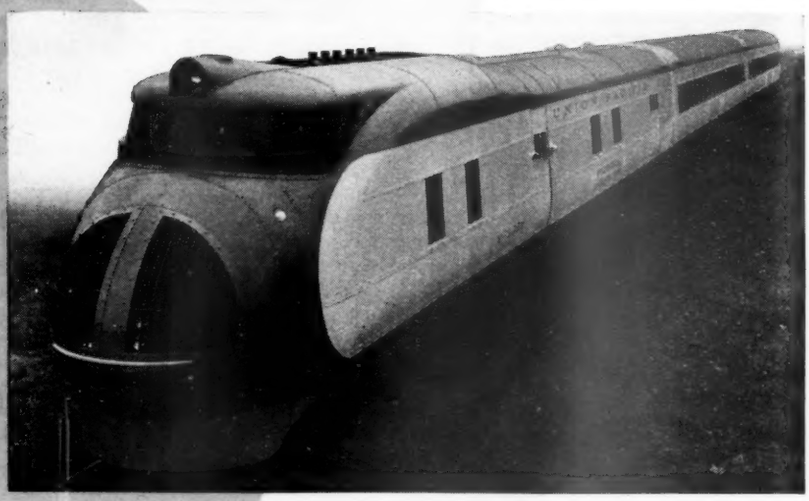
ONE TRAIN



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RAILWAY AGE

Organized Labor and a Square Deal for the Railroads

As Congress nears adjournment, it appears that no legislation of a constructive nature dealing with the transportation situation will be enacted. By constructive legislation, we mean that which is designed to end the present inconsistencies in the government's policy with regard to transportation which have fostered chaos in the industry as a whole, and have been particularly injurious to railroad traffic and prosperity. To list all the existing inequities which cry out for correction would require much space and, in some of the more recondite details, would invite controversy. No one expected that all the injustices would be removed at this or any other one session of the national legislature.

The railroads, railroad employees and those charged with representing the public interest did, however, have a right to expect that three measures, upon the desirability of which in the public interest all disinterested students had agreed, might speedily become laws. These were:

1. A bill to regulate interstate commerce by motor vehicle.

2. A bill to regulate interstate commerce by water.

3. The modification of the long-and-short-haul clause of the Interstate Commerce Act to enable the railways to meet competition of other forms of transportation where it exists without the necessity for reducing all intermediate rates in proportion.

Unions Main Concern for the Employed, Not the Jobless

Why were these bills, with such a unified preponderance of intelligent opinion supporting them and to the first of which the Administration in Washington was committed in principle, allowed to slumber? There are many answers to that question, but first and foremost among them must be placed the political zeal of the railway labor organizations in pushing, to the exclusion of anything else, their six-hour day bill, their pension bill, their train-limit bill and other class legislation in the selfish interest of railroad men who have jobs. The attention of the committees on interstate commerce of the two houses of Congress, and of that part of the membership which was in any way interested in transportation, was so pre-empted by the importunities of the railway labor lobby on this legislation for the benefit of those who have jobs that they had little time to consider other transportation legislation which would have improved railroad traffic and enabled the employment of more men.

The labor organizations, it is true, gave some support to the legislation designed to place motor carriers under regulation, and exerted themselves to a somewhat greater degree in behalf of modification of the long-and-short-haul clause. But neither of these measures were on labor's official legislative program. As reported in "Labor," this program was set up as follows:

1. Revision of the Railway Labor Act, so as to establish a federal board composed of carrier and employee representatives for the adjustment of grievances.

2. The six-hour working day, without reduction in compensation.

3. Retirement insurance for railroad workers.

4. A train limit bill.

5. A full crew bill.

6. An amendment to reduce the maximum working period fixed in the Hours of Service Act.

7. Amendment to the Employers' Liability Act which will enable injured railroad employees and their dependents to secure adequate compensation in the courts.

Not one of these seven measures was designed to give the railways an opportunity to secure a fairer share of available traffic, thus enabling them to employ more men. As a matter of fact, five of the seven were designed deliberately to increase the railways' cost of doing business, thus increasing their competitive disadvantage as compared with other forms of transpor-

tation, leading ultimately to the employment of fewer workers by the railroads than they would otherwise require.

Labor's Alternatives

The railway labor organizations were faced with two alternatives—they could either devote their main attention to legislation designed to improve the competitive position of the railways thus resulting in increased traffic which would provide jobs for their unemployed members, or they could concentrate upon measures to add to the earnings and the ease of their members still holding jobs. With their eyes open, they chose the latter, and immediately selfish, alternative—and what did it get them? Not one of their measures designed to increase railway expenses has become a law—principally for the reason that, however greatly Congress and the Administration may have desired to accede to their demands, they could hardly fail to overlook, as the labor unions did, the sorry financial position of the carriers. Thus, by seeking greatly to improve the position of their employed members while exerting themselves little if any in behalf of measures which should have improved the railways' financial position to enable the railways to meet higher costs, the unions failed to obtain their objective, as might have been expected of a movement the selfishness of which was so blindly shortsighted.

The Rayburn bill for the regulation of interstate motor carriers was introduced in the House of Representatives and hearings were held upon it early in the session. The unions presented testimony favoring the bill, excepting that it did not "go far enough." With that presentation, activity of the labor organizations in behalf of the bill ended. Neither "Labor" nor any of the other union publications which come to our notice listed it as a part of the labor program. In fact, such publications had little or nothing to say about the bill—while they urged their readers to bombard Congress with letters favoring the six-hour day, limiting the length of trains and providing compulsory pensions. If the members of the labor organizations wrote to their Congressmen as they were prompted by the labor publications, then the inescapable conclusion of most Congressmen today must be that organized railway employees are highly interested in increased pensions, shorter hours and easier work, but that they care precious little one way or the other if the railways' traffic is largely diverted to trucks and barges.

Who Will Speak for Employees if Unions Do Not?

We know that railroad employees do not feel that way about it, and that they are interested in seeing the railways get a square deal from the government insofar as competing forms of transportation are concerned. One of the most intransigent of the labor union leaders has been particularly vindictive in his opposition to "ship-by-rail clubs" of railway employees, formed to foster legislation to bring the railways' competitors under regulation. He has forbidden members of his organization to join such clubs, alleging that his organization has legislative machinery which is quite capable of fostering such measures. If the labor organizations deliberately refrain from active effort in behalf of legislation of this kind as they have done during the current session of Congress, such criticism by a union official of employees who attempt to do a job for themselves which his organization refuses to do for them, becomes even more transparently insincere than it was when it was first made.

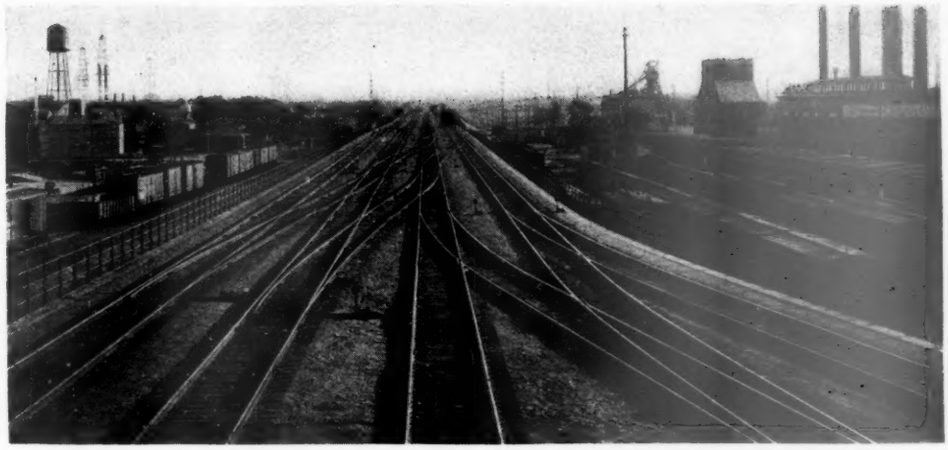
Are Rail "Fans" Disappearing?

Hearing and reading constantly of people attaining their majority without ever having ridden in a train, and viewing with alarm the declining passenger revenues, one is inclined to a pessimistic attitude regarding the interest taken in railways by the present generation. But is such pessimism justified?

The Wings of a Century show at the Century of Progress Exposition is largely a railroad pageant, and it, together with the railway exhibits there, has received and is receiving far greater patronage than was anticipated. Riding about the country on trains, the small boy is still to be seen regarding the huge locomotives with interested, gleaming eyes and viewing the engineman as his ultimate in heroes.

Then, too, the tremendous crowds all over the country which inspected the new streamline trains of the Union Pacific and the Burlington were certainly actuated by an interest in railroading developments. To one who rode the Burlington Zephyr on its non-stop flight on rails from Denver to Chicago, the crowds on top of towering buttes in Colorado at dawn and on roofs of factories in industrial Illinois in the evening were a revelation. Interest and enthusiasm for railroads are not dead. There is still to be found a tremendous spirit, an appreciation of the romance of railroading among people in all walks of life, a spirit and an enthusiasm which should be fostered.

Such spirit and appreciation are to be found among the members of the National Association of Railroad Enthusiasts, which holds its annual meeting on June 21 in Boston. The aims of this organization are to promote interest in railroading, to induce the public to ship and ride by rail, and to serve as a sort of clearing house for the exchange of railroad pictures and railroad information. While the organization, with some 150 members, is still in a more or less embryonic stage, there is certainly a nucleus there of spirit and enthusiasm that may conceivably be built into something of value to the railroads of the country, in addition to affording the railroad "fan" an opportunity to practice his favorite hobby.



Looking South along the Elevated Tracks from a Point just South of Reno avenue

Santa Fe Rebuilds Facilities at Oklahoma City

Includes 2½ miles of track elevation with 16 street and railroad undercrossings, a new passenger station and a new bridge over North Canadian river

WITH the completion of its new passenger station at Oklahoma City, Okla., about Aug. 1, the Atchison, Topeka & Santa Fe will bring to a close an extensive grade separation program in this city which has involved virtually the complete reconstruction of its facilities within the city limits. As a matter of fact, the Santa Fe's freight house is the only major unit of the company's facilities at this point that has not been renewed or subjected to extensive alteration. The project, which is now complete except for the station, involved the elevation of the company's tracks an average of about 15 ft. for approximately 2½ miles through the city; the construction of 13 street subways and 3 undercrossings for intersecting railroad lines; the building of a new bridge across the North Canadian river; the construction of a new passenger station; and various other smaller items incidental to such a project. It required the placing of 663,000 cu. yd. of fill and 60,000 cu. yd. of concrete.

City Has Grown Rapidly

Located in an oil-producing territory of comparatively recent development, Oklahoma City has enjoyed a rapid increase in population during the last decade. With the growth of the city and the consequent increase in the density of traffic carried by its business streets came a growing demand for the elimination of railroad and street crossings at grade at the busier intersections. Extending directly from north to south through the business section, the Santa Fe was one of the railroads subjected to this pressure and as early as 1925 began laying plans for grade separation.

The program of grade crossing elimination undertaken by the Santa Fe is part of a broader program envisaged by the city in which the first step was the removal of the main line of the Chicago, Rock Island & Pacific, which formerly extended from east to west through the business district, to a less congested location on the southern outskirts of the city. This earlier project, which involved the construction of a new passenger station for use jointly by the Rock Island and the St. Louis-San Francisco, was completed in the middle of 1931 and was described in detail in the *Railway Age* for September 5 of that year.

While the engineering aspects of the Santa Fe's track elevation project presented many difficult problems it was not necessary to move any of the important tracks or facilities to any extent. As the main tracks traverse the city in a straight line from north to south, all street intersections are at right angles and none of the street subways are skewed. One of the most difficult problems was that involved in providing connections and adequate service facilities to adjacent industries situated at the street level.

The elevated trackage extends from Ninth street on the north to South Twenty-third street, which is south of the North Canadian river, a distance of about 2½ miles. From Seventh street to Choctaw avenue, about 1.2 miles, the fill is confined within reinforced concrete retaining walls of the cantilever type, while elsewhere it is allowed to find its own slope. Throughout the business district, the elevation amounts to about 15 ft., while for a distance of more than 2,000 ft. through the bottoms immediately north of the river the tracks were elevated an average of about 25 ft., the maximum depth of the fill being about 38 ft.

While underpasses were provided at intersections with 13 streets and also at intersections with the Rock Island, the Frisco and the Oklahoma Belt, a number of street crossings were closed and the traffic rerouted. Thus, interference with all other traffic has been

eliminated except at certain locations where industry or team tracks remain at the street level.

Layout of Tracks

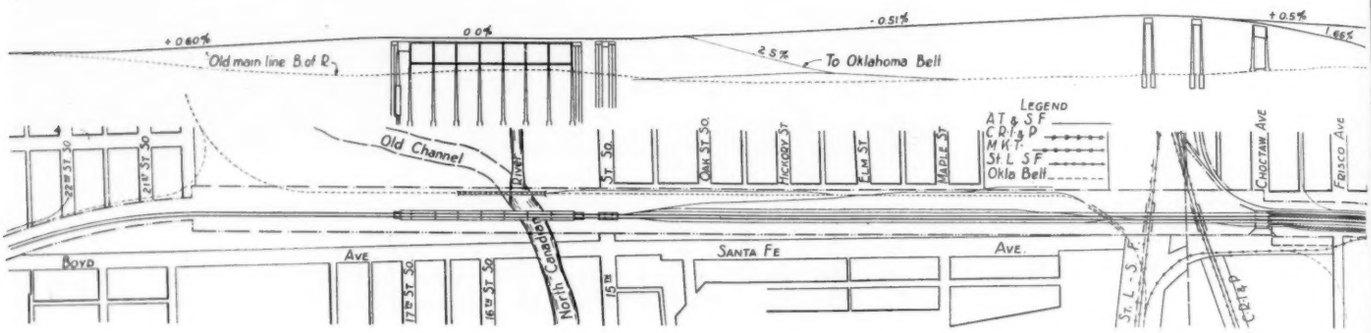
Throughout the length of the elevation project the trackage consists of two main tracks with a varying number of side tracks. From First street north to the end of the elevation the right-of-way is only 100 ft. wide, with industrial sites requiring track service along each side. In this section the elevated trackage consists of the two main tracks in the center, with an open or switching track along each side, from which crossovers extend to a continuous platform track along each retaining wall upon which cars may be spotted for the convenience of adjacent industries. Part of the open track on the east side has been temporarily omitted.

For a distance of about eight blocks south of First street, or to Pottawatomie avenue, the right-of-way is about 300 ft. wide and in this district are located the passenger and freight facilities, with both the freight house and the new passenger station west of the elevated trackage and at the street level. The passenger station is served by four elevated tracks, with two freight tracks east of the passenger tracks and on the same level. The freight house, which is immediately south of the passenger station, is served by four tracks at street level which connect with the elevated tracks just south of Pottawatomie avenue by means of a lead having a grade of 1.66 per cent.

Immediately south of Choctaw avenue, the Santa Fe crosses over the main lines of the Rock Island, the Frisco and the Oklahoma Belt, the subways for the first two named being designed to accommodate two tracks each, while the latter consists of a reinforced concrete box for one track. From Choctaw avenue to Fifteenth street South, which is just north of the North Canadian river bridge, there are two main tracks with a side track on each side. From the latter point south the line is double-track to Twenty-fourth street where it becomes single track.

In planning the track layout for the elevated section it was necessary to go to some lengths to furnish service to industries. At a number of locations there were constructed small timber docks at car-floor level, beyond which the industries constructed conveyors of various types into their establishments. At one location three steel trucking bridges were constructed from the track level across a private driveway into the second floor of a warehouse. Industries at some distance from the track elevation are still served by team-yard tracks at street level. On the west side of the elevation, these tracks connect with the freight house lead, while on the east side the industry and team tracks gain access to the elevation by means of an inclined lead which connects with one of the elevated tracks at a point south of Choctaw avenue.

Except with the Rock Island, no particular difficulty was encountered in making connections for interchange with the other railroads. The Rock Island connection is made near Second street where this company has its freight house and in this case it was necessary to construct a single track bridge to carry the connecting line over Second street.



Plan and Profile of the South Portion of the Elevated Trackage at Oklahoma City

Dump Cars Being Loaded With Sand Delivered by the Hydraulic Process by a Dredge From the North Canadian River

Fill Consists of Sand from River

All of the filling material used on the project consisted of sand supplied from the river by a floating dredge which was engaged in channel straightening work under a contract with the city. Material for the embankment on both sides of the river was pumped directly into place by the dredge up to a maximum distance of about 4,000 ft. north of the river, about 300,000 cu. yd. of material being placed by this method.

North of the 4,000-ft. limit to the end of the elevation the fill material was hauled to the point of deposit in Magor 30-yd. air-dump cars. The loading of the dump cars was greatly facilitated by an interesting device that permitted the loading of five cars simultaneously. This consisted of a 45-in. metal cylinder, 200 ft. long, which was elevated in a horizontal position with a loading track along each side.

Sand and water from the dredge was pumped into one end of the cylinder which served in the dual capacity of a distributor and settling basin. From the cylinder the sand was discharged into cars spotted on the loading tracks through gates in the bottom which opened into swinging steel spouts that permitted the sand to be directed into cars on either track. The gates and spouts were controlled manually by operators who worked from a narrow platform underneath the cyl-

inders and extending its full length. A vented pipe at the end of the cylinder opposite the inlet permitted the escape of excess water.

Design of Subways

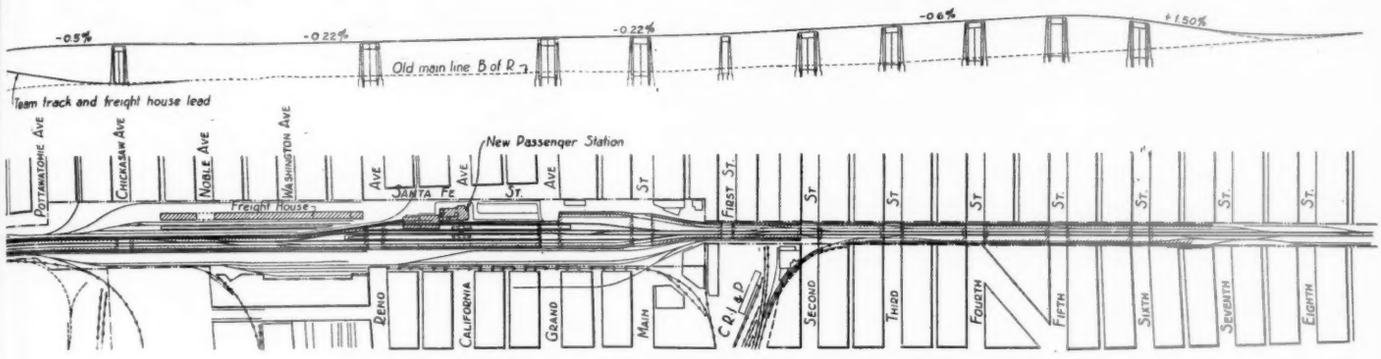
The street underpasses, in which the overhead clearance varies from 14 to 14.5 ft., consist in general of 24-in. I-beam spans embedded in concrete and carried on concrete abutments of the gravity type. Exceptions to this are the three structures at Choctaw avenue, Fifteenth street South and Seventeenth street South where ordinary deck plate girder spans with waterproofed creosoted timber ballasted decks are used. The underpass at Seventeenth street South is constructed as an approach span at the south end of the river bridge. This span consists of a 50-ft. deck plate-girder supported at the north end on the end pier of the river bridge and at the other end on a pile-supported concrete pier which also carries one end of a ballasted-deck pile trestle approach.

All of the street subways except four are provided with center piers and curb bents, with the clear roadway widths varying from 20 ft. to 35.5 ft., and the sidewalks from 4 ft. to 10.75 ft. The other four have one clear span each which varies from 26 ft. to 47.75 ft. The underpasses carrying the Frisco and Rock Island tracks are of the same general construction as the street subways except that cast-iron blast plates are provided to protect the bottom of the concrete encasement and the lower flanges of the beams. In addition, both of the railroad crossings are built on a slight skew.

The subway structures at Chickasaw avenue, the two railroad crossings and the reinforced concrete box of the Oklahoma Belt each carry four Santa Fe tracks, while all the other street subways except two carry either five or six tracks. The exceptions are the subways at Fifteenth and Seventeenth streets South, each of which carries only the two main tracks.

The backs of all abutments were given two coats of damp-proofing and the concrete decks of the subways are protected with a three-ply felt-and-cotton fabric waterproofing, which in turn is covered with asphalt plank 1 in. thick. Drainage behind the abutments is provided by horizontal lines of 4-in. tile, carried on a horizontal shelf, with vertical connections to street sewers.

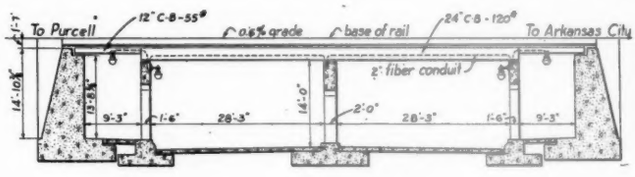
The retaining walls are of the conventional cantilever type throughout, having a width of 15 in. at the top and a batter on the inside of 1 in 12, the outside face being vertical. Spread footings were used except north of First street where the proximity of buildings on private property made a more restricted type of footing desirable. In this section the walls are supported on cast-in-place reinforced concrete cylinders two feet in diameter, which are carried down to rock, or to a depth of 25 ft. where no rock is encountered. As with the subway abutments, the backs of the retaining walls were given two coats of damp-proofing compound, while drainage is provided by weep holes and six-inch drain tile back of the wall. A continuous line of steel pipe railings with cast iron posts is provided along the tops of the retaining walls and across the subways. All telegraph lines are carried in a cable which is attached to the underside of the coping on the outside of the west wall and which is carried in conduits through the faces of the subways.



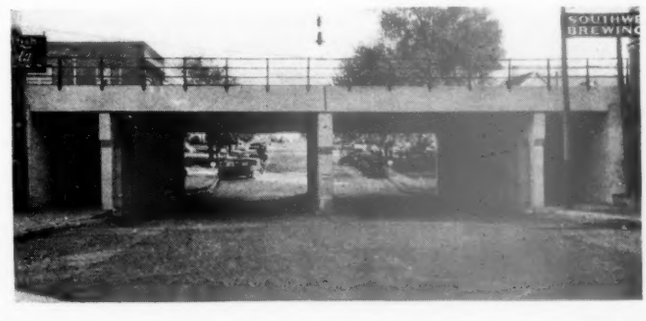
Plan and Profile of the North Portion Showing the Location of the New Station

The New River Bridge

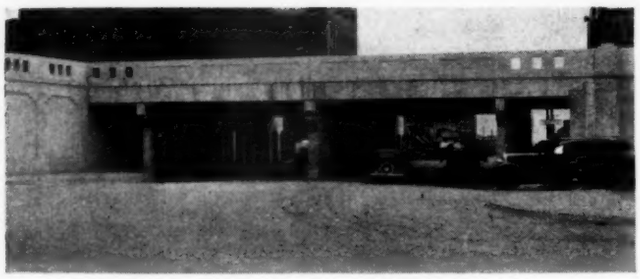
The new bridge across the North Canadian river, on which the track level is about 14 ft. higher than on the old span, is a double-track structure consisting of seven 106-ft. deck-girder spans carried on eight concrete piers, with a 42-ft. ballasted-deck pile trestle approach at the north end and the Seventeenth Street subway at the south end. Each pier rests on two 16-ft. concrete cylinders which were carried 4 ft. into solid rock, giving them a total height of from 31 to 36 ft. All of the concrete cylinders were sunk by the open-caisson method except one which was converted into a pneumatic caisson by placing a deck on the working chamber and providing the necessary air lock. The center line of the new bridge was located 26 ft. east of and parallel to the



Cross Section Through a Typical Street Subway



The Street Subway at Third Street, Which Embodies the Same General Type of Construction as Employed in all Except Three of the Subways



A View of the Grand Avenue Underpass From the West

center line of the old bridge so that it could be built without interference with traffic over the old bridge.

In developing a plan of procedure for carrying forward the various phases of this project, careful study was necessary to insure that the work would be done without interference to traffic. The best solution to this problem appeared to be a plan of construction whereby one retaining wall could be constructed at a time, together with the corresponding ends of the railroad and street subways, leaving space on the other side of the right-of-way where one or more tracks could be kept in operation. Sufficient embankment was then placed along the completed retaining wall to accommodate one elevated track, over which traffic was handled while the other wall and the remainder of the fill was placed.

Elevation Begun at South End

These operations were begun at the south end, the new river bridge being constructed and sufficient embankment being pumped in to permit construction of a track along the easterly side of the embankment to the final elevation. This work was carried out to a point north of Choctaw avenue, the east ends of the subways at the Frisco, Rock Island and Choctaw avenue crossings and of the concrete box for the Oklahoma Belt being constructed prior to the placing of the embankment. Following the completion of this elevated track, which had a temporary run-off to street level north of Chickasaw avenue, the old main line was removed, the west ends of the underpasses were constructed and the remainder of the embankment placed.

North of Chickasaw avenue, the necessity of providing passenger depot facilities and service continuously during the construction work dictated that the procedure followed at the south end be reversed. In other words, north of Chickasaw avenue the west retaining wall and the west ends of the subways were constructed first and sufficient embankment placed to permit the construction of one elevated track. Traffic was then directed over this track and the tracks at street level removed to permit the construction of the east wall, the east ends of the subways and the remainder of the embankment.

During the construction of the west retaining wall, the old passenger station was abandoned and temporary facilities for the handling of passenger, baggage, mail and express business were provided along the east side of the station grounds opposite the old station. At this time the new baggage, mail and express portion of the station building was constructed on the westerly side at their permanent location as the southerly portion of the new station building, partly under the elevated tracks, in which the passenger depot facilities were again temporarily installed. The construction activities were then transferred to the easterly side and the temporary facilities there abandoned.

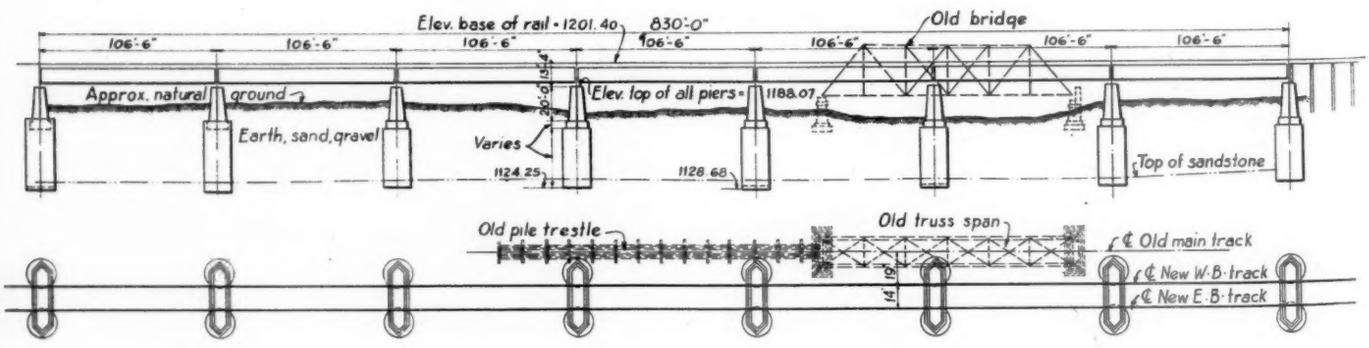
The work of placing the embankment along the westerly retaining wall between subways was done by dumping the filling material from a track at street grade and handling it into place against the westerly wall with clamshell buckets. After one track had been raised, the remainder of the filling material was dumped from the elevated position.

All concrete used in the subways and the retaining walls was proportioned dry at a central batching plant and hauled to mixers at the point of installation in three batch trucks. The mixers were self propelled and equipped with towers for elevating the concrete to the tops of the forms.

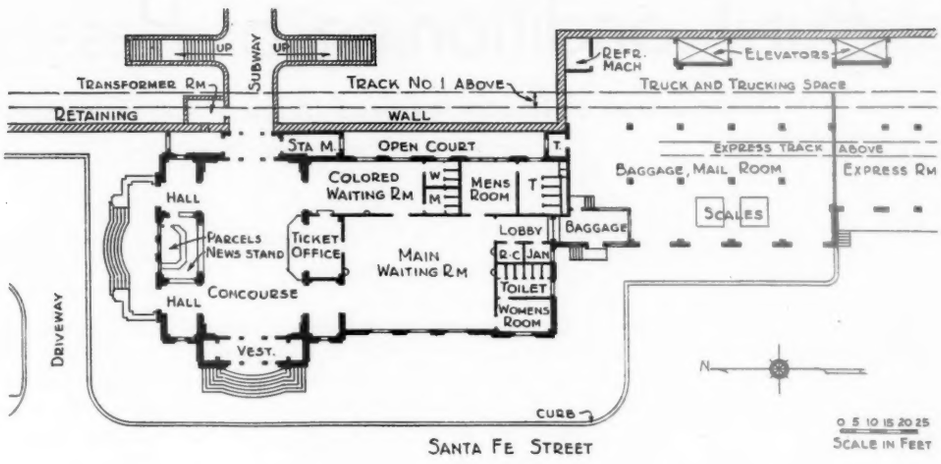
The New Passenger Station

The new station, which is now nearing completion, is situated on the site of the old station at the intersection of Santa Fe street and California avenue. An entrance faces on Santa Fe street while the main entrance is provided at the northerly end, being served by a driveway that connects with both Santa Fe street and Grand avenue. The station is a single-story structure of concrete and brick construction faced with Cordova cream limestone above a pink granite base. The reinforced concrete slab floor is of T-beam construction carried on concrete foundations. There is no basement, the level of the floor being about four feet higher than that of the street.

In architectural composition, the building follows the modern vogue, embodying the use of simple but massive details and the characteristic setback treatment of copings as the building rises to its varying heights and as developed architecturally from the plan requirements of the facility. The greater height given that part of the structure which houses the concourse, gives a pleasing emphasis to the Santa Fe Street entrance, which forms its west front. This entrance is enhanced also, by flanking pilasters of massive outline that are ornamented by fluted panels. Aluminum, subjected to



Elevation and Plan of the New Bridge Across the North Canadian River



Floor Plan of the New Passenger Station at Oklahoma City

modernistic treatment, is used as the facing of the marquises, for the window frames and other exterior trim. An unusual effect is obtained by a frieze composed of geometrical designs set in recessed panels over the windows.

The interior of the building presents a convenient arrangement of facilities for the comfort and convenience of passengers. From either entrance one enters the concourse which extends the full width of the building with a doorway at its east end leading into a subway from which stairways extend to the platforms at the track level. Entrances at opposite ends of the south wall of the concourse open into the main waiting room on the west and the waiting room for colored passengers on the east.

The ticket office is so located that the counter occupies the central portion of the south wall of the concourse, with a separate ticket window serving the waiting room for colored passengers. A parcel room and a news stand are located along the north side of the concourse. An open court between the east wall of the station and the retaining wall of the elevated tracks permits the entrance of air and light to that side of the building. In this court, a separate room which opens into the subway is provided for the station-master. A baggage checking lobby is at the south end of the main waiting room where the passenger station proper adjoins the baggage, mail and express building.

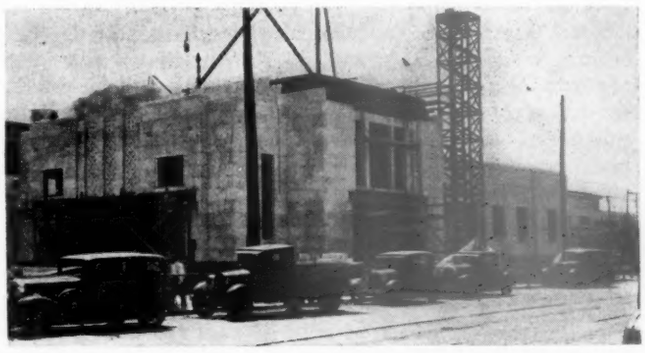
The concourse and waiting rooms are floored with terrazo while rubber tile is used in the ticket office, the parcel room and the news stand. The interior of the concourse is walled with Cordova shell stone quarried in Texas while all other rooms have plaster walls. A paneled wainscot of walnut six feet high with a 12-in. base of black granite is provided entirely around the main waiting room, while all other rooms have plain walls with tile base. The ceilings are of the suspended type and are recessed or paneled to enhance their appearance. The ceiling heights range from 12 ft. in the ticket office and around the news stand to 28.5 ft in the concourse.

Ventilation for the concourse is provided by two ventilators, one situated in the roof above the suspended ceiling of the ticket office and the other on the opposite side of the concourse above the news stand. Ornamental metal grilles for the circulation of air through the concourse are provided in the walls. The roof of the station is of cast-in-place reinforced concrete, protected with tar and gravel roofing on one inch of insulation. Extending from the passenger station proper to the south is a wing of the building for handling baggage, mail and express. This portion of the building is of the same general type of construction, and extends partly under the elevated tracks, with two elevators for handling trucks to the upper level.

Stairways leading upward from the passenger subway of the station connect with two passenger platforms on the track level, each of which serves two tracks. The platforms, which are 800 ft. and 1,000 ft. long, respectively, are covered with steel-framed butterfly train sheds, 200 ft. and 660 ft. long, having roofs of wood sheathing topped with a built-up asphalt roofing.

A small building of brick and concrete construction, located on the track level at the south end of the station platforms, has been provided for the use of car inspectors, cleaners and Pullman employees, and also contains facilities for charging car batteries. Steam for heating the passenger station, the freight depot and Pullman cars is provided by a boiler plant recently installed in the freight house, which is located a short distance south of the passenger station.

The entire project at Oklahoma City has been carried out under the general direction of H. W. Wagner, chief engineer of the Eastern Lines, with H. L. Hunter, construction engineer, in direct charge of the work. E. A. Harrison, architect of the railroad, supervised the design of the station, while the subway structures were designed under the direction of R. A. Van Ness, bridge engineer. The T. A. Allen Construction Company, Los Angeles, Cal., held the contract for all concrete work in the retaining walls and subways and also placed the structural steel for the subways. The river piers were constructed by the Union Bridge & Construction Company, Kansas City, Mo., while the superstructure was installed by company forces. The grading was done by Leo Sanders, Oklahoma City, while M. A. Swatek & Co., of the same city installed the drainage facilities at the street subways and did the street paving. The station building is being constructed by F. M. Spencer & Sons, Topeka, Kan.



A Construction View of the New Station Looking Southeast From a Point on Santa Fe Street

Air Conditioning of Passenger Cars*

A discussion of factors involved in specifying air-conditioning equipment to meet particular operating requirements

By A. R. Walker

Electrical Engineer of Equipment, Illinois Central, Chicago

AIR-CONDITIONING systems in service in railway passenger equipment at the end of 1933 were as follows: Ice, 297; steam ejector, 41; electro-mechanical, 204; direct mechanical, 106; total, 648.† Each system has its advantages and disadvantages, but, undoubtedly, certain systems will prove superior for certain runs. In order to make recommendations for any road it is necessary to make a careful study of all runs involved to determine which system will be the most economical and give the best results.

The capacity required in the refrigerating system depends upon a number of factors, such as size, type and construction of the car, number of passengers, outside air temperature and humidity, inside temperature desired, etc. Experience thus far indicates that a capacity of six tons of refrigeration delivered to the car will be satisfactory under the majority of conditions.

The air-circulating system consists essentially of outside air intakes with filters and manually operated shutters, blowers and motors and a suitable duct system for the proper distribution of air throughout the car.

In order to reduce the demand on the refrigerating and heating equipment, the general practice has been to re-circulate the air in the car body through the conditioning unit, keeping doors and windows closed as much as possible and adding a small amount of outside air to make up for leakage and to provide for frequent changes of the air. This tends to maintain a slight pressure within the car which assists in keeping dust and dirt from entering. The outside air taken in is passed through suitable filters to remove the dust and dirt. In some installations, the re-circulated air is also passed through the filters. The amount of outside air that should be supplied varies with the type of car, number of passengers, and atmospheric conditions.

It has been observed that the majority of air-conditioned cars have a peculiar odor and that with some it is necessary to open doors and windows and circulate a considerable amount of outside air through the car for some time before loading, in order to eliminate the odor of stale and smoky air. This indicates that under normal conditions an insufficient supply of outside air is taken in. On club, lounge and other cars, in which there is a great deal of smoking, it is very essential to provide for frequent air changes in order to eliminate the smoke and odor. When the humidity of the outside air is high, considerable moisture will be condensed on the evaporator tubes, and the air passing through will be washed to a certain extent. This assists greatly in clarifying the air. On low humidity days, with little moisture being condensed on the evaporator tubes, more outside air must be taken in to maintain the same air conditions in the car.

A number of different systems of air distribution have been tried, such as bulk head delivery, single duct on one side, two ducts, one on each side and a single duct through the center. The two-duct arrangement appears to provide better distribution and greater freedom from objectionable air currents.

With cars equipped for forced air circulation and taking in outside air through the conditioning unit, it is necessary to provide therein a heating coil to raise the temperature of the incoming air during cold weather. Experience during the past few years indicates that the greater part of the total heat required can be supplied, if so desired, by the heating coil in the conditioning unit. However, it is necessary to supply some heat at the floor in order to keep the lower part of the car at a comfortable temperature. The control of the heating equipment should be interlocked with the refrigerating equipment control in order to avoid operating both at the same time. While cooling, temperature control is usually obtained by controlling the operation of the compressor, the steam ejector or the circulating water pumps by suitable thermostats. If the system has sufficient capacity and is operating properly, the temperature of the car will be maintained within a range of one or two degrees.

The temperature to be maintained depends to a certain extent upon the amount of moisture in the air, as it is necessary to maintain a higher temperature when the humidity is low in order to be in the comfort zone. Up to the present time, no satisfactory humidity control equipment is available for use on cars. While cooling, a certain degree of automatic humidity control is secured. While heating, humidification is usually desirable, but is seldom attempted, due to the lack of suitable equipment.

The Problem of Adequate Power Supply

One important problem to be solved in connection with air conditioning is that of power supply. The majority of cars in service today are electric lighted and are equipped with fans. Power is usually furnished by storage batteries and by axle generators, varying in size from 2 to 5 kw., with a few larger machines on cars having exceptionally heavy loads. When air-conditioning equipment is used, the electrical power demand is increased approximately 1 kw. for ice systems, 3.5 kw. for steam systems and 10 kw. for electro-mechanical systems. In addition to the electrical load, steam systems require approximately 270 lb. of steam per hour. The direct-mechanical systems impose a mechanical load of approximately 10 kw. per car. All of this power must be supplied by the locomotive en route. Due to the fact that power is not required to produce refrigeration with the ice system, this system affects train performance far less than either of the others. Inasmuch as axle generators and mechanical-driven compressors will not operate below a certain "cut-in" speed and will not carry full load until a speed considerably higher than "cut-in" speed is reached, it is quite apparent that the characteristics of the run, i.e., schedule speed, top speed, number of stops,

* Abstract of a paper presented before the Western Railway Club meeting, held Monday evening, March 19, at the Hotel Sherman, Chicago.

† Estimate based on a study first published in the February *Railway Mechanical Engineer*.

length of stops, percentage of time of operation of slow speed, length of run, length of train, etc., must be vital factors in the selection of equipment. Equipment that is satisfactory for operation between New York and Chicago may not be at all suited for use between Chicago and New Orleans, New York and Miami, or New Orleans and Los Angeles.

Let us consider for a moment the cost of supplying the necessary power required en route. Since this power must be supplied by the locomotive, additional fuel, water, lubricants and maintenance will be involved. Assuming a generator and drive efficiency of 80 per cent, a locomotive mechanical efficiency of 80 per cent, 3.5 lb. of coal per cylinder hp. hr. and 6 lb. of water per lb. of coal, the cost of generating 100 lb. of steam would be $0.01888 and the cost of generating 1 kw. hr. would be $0.00833, based on an average cost of coal, water and lubrication of $0.001133 per lb. of coal. This is based on the assumption that the cost of coal, water and locomotive lubrication would increase in direct proportion to the amount of coal burned. As the cost of lubrication would not increase in direct proportion to the amount of coal burned, the extra cost of lubrication included in the above figures should offset the theoretical increase in cost of locomotive and car maintenance, exclusive of the air-conditioning equipment. The cost of $0.001133 for coal, water and lubrication per lb. of coal was the average for passenger locomotives for the years 1932 and 1933.

Table I—Cost Per Hour of Electric Power, Steam and Ice, with Six-Ton Capacity Rrefrigeration Systems

Mechanical-compressor system, 10 kw. hr.	$0.08330	$0.08330
Steam ejector system		
3.5 kw. hr.	$0.02915	
270 lb. steam	0.05100	
Total		$0.08015
Ice system		
1 kw. hr.	$0.00833	
500 lb. ice	1.00	
Total		$1.00833

Ice for use with the ice systems will cost from $3 to $5.50 per ton on cars, so, for comparative purposes, we will use a figure of $4 per ton. Using the above figures, we find that the cost per hour of electric power, steam and ice en route for producing refrigeration at the rate of 1,200 B.t.u. per min., or 6 tons in 24 hr. for the three systems is as shown in Table I.

Table II—Power Requirements and Costs per Car of Refrigeration on 294.3-Mile Run A, Assuming Continuous Cooling

	Electro-mechanical	Steam ejector	Ice-type
Total kw. hr. required	65	22.8	6.5
Direct from generator	46.8	16.4	4.7
Generator to battery	22.8	8.0	2.2
Total kw. hr. from generator	69.6	24.4	6.9
Cost of electrical power	$0.58	$0.20	$0.06
Lb. steam required	....	1,755	....
Cost of steam	....	$0.33	....
Lb. ice required	....	....	3,250
Cost of ice	....	....	$6.50
Total cost	$0.58	$0.53	$6.56

Let us now consider two typical regular runs and see what the power requirements and costs are under the worst conditions and then under average conditions. The demand on refrigerating equipment varies with atmospheric conditions and the worst condition possibly would be when the temperature and humidity were such that the equipment must be operated continuously. On Run *A*, the distance is 294.3 miles; schedule time, 6 hr. 30 min.; number of stops, 14; schedule speed, 45.26 m.p.h.; generator cut-in, 4 hr. 40 min. (or 72 per cent average time, as determined by test); and battery efficiency, 80 per cent. Under these conditions, the power requirements and costs per car of the three systems, assuming continuous operation, are as shown in Table II and, assuming operation of the air-conditioning equipment 75 per cent of the time, as shown in Table III.

On Run *B*, the distance is 921.2 miles; schedule time, 25 hr. 35 min.; stops, 52; schedule speed, 36.1 m.p.h.; generator cut-in, 13 hr., or 51 per cent of the time. With refrigerating equipment operating 100 per cent of the time, the power required and costs per car are as shown in Table IV. For 75-per cent operation, these figures are as shown in Table V.

The figures shown in these tables cover only the cost of operating the refrigerating equipment en route and do not include the water required, about 8 gal. per hr., for the steam system. The costs of the steam and the electro-mechanical systems are so nearly the same that a steam leak or a change in generator and drive efficiency would make either the one or the other the more expensive. The refrigerating cost for the ice system is high.

Operating Cost Not the Only Important Consideration

However, these figures do not tell the whole story. In addition to the cost of producing refrigeration en route, we must consider a number of other items such as generator capacity, weight, pre-cooling at terminals, reliability, maintenance expense, equipment used on Pullmans and foreign-line cars operating into terminals, and fixed charges.

Table III—Power Requirements and Costs per Car of Refrigeration on 294.3-Mile Run A, Assuming that the Cooling Equipment Operates 75 Per Cent of the Time

	Electro-mechanical	Steam ejector	Ice-type
Total kw. hr. required for continuous fan load	3.3	3.3	3.3
Direct from generator	2.3	2.3	2.3
From generator to battery	1.1	1.1	1.1
Kw. hr. required for refrigerating unit	46.3	14.6	2.4
Direct from generator	33.4	10.5	1.8
From generator to battery	16.2	5.1	0.9
Total from generator	53.0	19.0	6.1
Cost of electric power	$0.44	$0.16	$0.05
Lb. steam required	....	1,316	....
Cost of steam	....	$0.25	....
Lb. of ice required	....	....	2,437
Cost of ice	....	....	$4.87
Total cost	$0.44	$0.41	$4.92

Generator capacity is of vital importance. The average generator loads for air conditioning on the above-mentioned runs are as shown in Table VI. These figures indicate that consideration should be given to increasing schedule speeds as equipment that is satisfactory for fast runs will be of insufficient capacity for slow runs.

The direct-drive mechanical system increases the generator load less than any of the other systems, but on some slow-speed runs, there is danger of having insufficient refrigeration unless special gearing is installed.

With the present trend towards light-weight equipment, the question of increased weight becomes quite important. In this respect, the advantage lies with the direct-drive mechanical system, due to the absence of large batteries, ice and water. Of course, the total increase in the weight of a car, due to air conditioning, is determined not only by the refrigerating system used, but also by the general layout, duct design, added insulation, etc.

Practically all mechanical compressor systems are arranged for precooling from an outside source of three-

phase 220-volt a.c. current, in order to conserve battery capacity and to lighten the load on the axle generator. The direct-drive mechanical compressor systems are not arranged for operation from a storage battery and, therefore, must be pre-cooled from an outside source of power. The cost of pre-cooling facilities adjacent to the terminal tracks will depend upon local conditions, but will amount to a considerable sum when all the terminals involved on a system are considered. The cost of power will also vary greatly.

The use of steam systems necessitates providing a steam supply all year for pre-cooling at the terminals. As stationary steam plants at many terminals are closed during the summer months, it will be necessary to operate these plants, install oil or gas-fired boilers or pre-cooled from a locomotive, any of which means added expense, the amount of which again depends upon local conditions.

Ice-activated systems need only a supply of ice for pre-cooling, and require, therefore, a much smaller investment in pre-cooling facilities.

With direct-mechanical, steam and ice systems, the power required for operating fans and pumps while pre-cooling is furnished from the battery, and must be replaced by the axle generators, if yard charging is to be avoided.

Ice systems are quite simple and have proven very reliable as long as there is a sufficient supply of ice in the bunkers. The bunkers must be quite large or it will be necessary to re-ice frequently between terminals to maintain continuity of operation. On long runs, facilities for icing must be provided at intermediate points.

Table IV—Power Requirements and Costs per Car of Refrigeration on 921.2-Mile Run B, Assuming Continuous Cooling

	Electro-mechanical	Steam ejector	Ice-type
Kw. hr. required	255	89.3	25.5
Direct from generator	130	45.5	13.0
From generator to battery	156.3	54.5	15.7
Total from generator	286.3	100.0	28.7
Cost of electric power	$2.39	$0.83	$0.24
Lb. of steam required	....	6,885	....
Cost of steam	....	$1.30	....
Lb. of ice required	....	....	12,750
Cost of ice	....	....	$25.50
Total cost	$2.39	$2.13	$25.74

Steam systems have been in operation for over two years, and have proven to be reliable. Records of as high as 175,000 car-miles per failure have been obtained.

The mechanical-compressor systems have been in successful operation on cars since 1930. During the past few years a number of manufacturers have developed this type of equipment and, due to the fact that much of the development work has been done by men not familiar with the requirements to be met in the railway field, many delays and failures have occurred, due to attempting to use industrial type of equipment on cars and to underestimating the severity of the conditions to be encountered. A large amount of equipment has been redesigned and, no doubt, the majority of the "infant ailments" have been cured, and we will have greater reliability with lower maintenance in the future. Many equipments are now giving a continuity of service nearly equal to that of the other systems.

Present Maintenance Cost Figures Not Conclusive

With a few exceptions, maintenance figures available today are not conclusive, this being especially true for the mechanical-compressor systems. Many pieces of apparatus have been redesigned and rebuilt or replaced. As with all newly-developed equipment, it takes some time to eliminate all the "bugs" and to get all the maintainers properly broken in. Until these are accomplished, maintenance costs are bound to be high. Up to the present time, the mechanical-compressor systems appear to show up the most unfavorable, but, in view of what has been accomplished with some equipments, we are undoubtedly safe in saying that the majority of these, from now on, will compare quite favorably with the steam and ice systems, in this respect.

Inasmuch as all roads operate a number of Pullman cars, and cars from foreign roads into the terminals, consideration should be given to the type of equipment in use on these cars. If these cars are equipped with mechanical-compressor systems, it will be necessary to provide facilities for pre-cooling from an outside source of electric power. Then, if the road under consideration applies steam systems to all of its cars, it would be necessary to provide facilities for pre-cooling from stationary power plants or from locomotives. Thus, the investment in pre-cooling facilities will be practically doubled, and, in arriving at total costs of air-conditioning, terminal investments must be taken into account, as well as the investment in the equipment on the cars. The investment required for equipping the cars should not exceed $8,000 per car for steam or mechanical-compressor systems, and should not exceed $3,500 for cars equipped with ice systems. These figures will vary a great deal, depending upon the type of car, method of air distribution, size of batteries used and type of equipment. Inasmuch as the equipment will be maintained in a serviceable condition, it should have a life of at least 10 years. Probably the greater part of the equipment now being installed will be retired due to obsolescence rather than to the fact that it is worn out.

Table V—Power Requirements and Costs per Car of Refrigeration on 921.2-Mile Run B, Assuming that the Cooling Equipment Operates 75 Per Cent of the Time

	Electro-mechanical	Steam ejector	Ice-type
Kw. hr. required for:			
Continuous fan load	12.8	12.8	12.8
Direct from generator	6.5	6.5	6.5
From generator to battery	7.8	7.8	7.8
Kw. hr. required for refrig. unit	181.7	57.4	9.6
Direct from generator	92.7	29.3	4.9
From generator to battery	110.0	35.1	5.9
Total from generator	217.0	78.7	25.0
Cost of electric power	$1.81	$0.66	$0.21
Lb. of steam required	....	5,164	....
Cost of steam	....	$0.98	....
Lb. of ice required	....	....	9,562
Cost of ice	....	....	$18.12
Total cost	$1.81	$1.64	$18.33

Table VI—Average Generator Loads for Air Conditioning on Runs A and B*

	Electro-mechanical	Steam ejector	Ice-type
Run A			
Refrigerating 100 per cent of time	14.9 kw.	5.2 kw.	1.5 kw.
Refrigerating 75 per cent of time	11.4 kw.	4.0 kw.	1.3 kw.
Run B			
Refrigerating 100 per cent of time	22.0 kw.	7.7 kw.	2.2 kw.
Refrigerating 75 per cent of time	16.7 kw.	6.0 kw.	1.9 kw.

* To these must be added the lighting load of approximately 3 kw.

In conclusion, it might be well to point out that air conditioning has been developed during a time when the railroads were less able than at any time in their history to finance any new development. There is no question as to the desirability or even to the necessity for air-conditioning, and the only thing that remains is to determine the most economical and satisfactory method, all factors considered.

Not One of the "Brain Trust"

Co-ordinator Eastman urges financial conservatism and centralized control over all transportation

ALTHOUGH an advocate of definite economic planning, "by the best thought which our country can bring to bear" and "with an eye to the general welfare of the community," Joseph B. Eastman, federal co-ordinator of transportation, in an address before the New York Bond Club on June 5, definitely disassociated himself from the so-called Roosevelt "brain trust." Remarking at the opening of his address that his title has "so far escaped alphabetical abbreviation" and that, although associated with the administration in that capacity he was "mortified to say that few have been willing to accord me a place in the Brain Trust," Mr. Eastman proceeded to indicate serious questions in his mind as to the efficacy of some of the doctrines usually ascribed to the "brain trust" as panaceas.

For example, discussing the labor problem, he said: "There is no sound reason why more labor should be used in production than is necessary. Nor have we in this country ever come anywhere near to the production of the amount of wealth which it is well within the capacity of our people to consume or utilize. Shorter work days, except to supply needed opportunity for rest, leisure, and recreation, are merely a counsel of despair and a confession of inability to solve the problem as it should be solved. It is not so much a question of the redistribution of wealth as it is of an increase in the opportunity to consume wealth which will permit of a far greater production of wealth."

Conservatives Have Not Been Conservative

In addition to proclaiming his own conservatism, as compared with the ideas of some of the protagonists of the "new deal," however, Mr. Eastman told his audience that "one of our troubles in this country has been that the conservatives have not been conservative, at least not in business and finance," and in discussing the problem of railroad reorganization said he could wish that "there were somewhat less tendency to regard railroad sojourn in the hands of a court as a national disaster to be avoided at any cost," and that "a trip to the hospital for internal repairs is often the route to sound health in the future." "This may seem hard-boiled doctrine to the security-holders," he said, "but they cannot escape the close link between their own health and that of the company."

Pointing out that he is not a railroad "Czar" or even a director general of railroads, and that he has not "done much actual co-ordinating," Mr. Eastman said his activities so far have been "chiefly in the fields of research, counsel, and I hope, the promotion of useful ideas," and that "unfortunately Congress has not been able to take up these recommendations for the centralized control of transportation at the present session" but that "they will be reinforced and renewed at the next session." Mr. Eastman also said in part:

Sound Principles

"In the old days, forty or fifty years ago, some of the financing of railroads and public utilities in New England, especially in Massachusetts, was actually conservative. I do not mean to say of course, that this was confined to New England, but I happen to know what was done there. The principles followed were something like these:

Never incur debt unless absolutely necessary.

Confine capitalization to common stock, so far as possible, and issue no more than need be of that.

Endeavor to pay liberal dividends, but in normal times well below what the earnings will permit.

Never declare stock dividends.

Issue new stock at a premium, if possible.

Establish sinking funds for indebtedness and seize every opportunity to pay off debt.

If a long-term indebtedness must be incurred, let it take the form of debentures, and mortgage neither fixed property nor equipment.

Plough back surplus earnings into the property and provide amply for depreciation in one way or another.

Take sound financial advice, but avoid the advice of those who make their money in dealing in securities.

Be wary of the same advice in expanding business and properties.

Keep both the corporate and the financial structures as simple as possible.

"Those principles are not only conservative but they are, in my judgment, eminently sound. My own memory goes back to the time when the New Haven Railroad followed them in large part. Later it forsook them and fell on evil days. At the opposite pole were the Jay Gould methods of financing. In the history of our railroads there has been far too little of the one and far too much of the other. After Jay Gould's day, for he overlooked some bets, legal and financial minds combined to devise and exploit the weird, pyramiding intricacies of holding companies. Fortunately they never gained great vogue in the railroad world, but even there they have caused a sufficient number of financial headaches. Other more recent eccentricities which would have given pain to the old and bona fide conservatives are stock without par value and stock without voting power.

"I mention these matters, not for purposes of recrimination, but to suggest that if the railroads are to continue in private ownership, they must, if they are to surmount the serious difficulties which lie ahead of them, cling close to the sound and unadulterated principles of genuine financial conservatism. I do not mean, of course, that it will be practicable, in view of the present capitalization of the railroads, to follow the old New England rules religiously.

Obsolete Facilities Should Be Retired

"Some of the harm which was done by financial exploitation in the past has been repaired, at least so far as the railroad companies are concerned, in part by failures and reorganizations and in part by the reinvestment of earnings in the plants. But there are individual companies which still suffer grievously from it, and it has left its marks upon the railroad industry as a whole in a heavy load of indebtedness and fixed charges. The research of the Interstate Commerce Commission indicates that in the aggregate the railroads are not overcapitalized, in the sense either that their outstanding securities exceed the amount of money which has gone into the properties or that they exceed so-called fair value for rate-making purposes. There is an important

question mark about this latter conclusion, however, and that is doubt as to the amount of property which should be reckoned as obsolete and tagged for retirement. No one can now be certain of the actual amount, but it is clear that much such property exists and the sooner it is scrapped and written off the better for all concerned. Nothing can possibly be gained by temporizing with this situation.

"On the subject of indebtedness and fixed charges there is considerable popular misunderstanding. Some seem to think that a railroad should be able to reduce fixed charges as it reduces operating expenses. The fixed charges are, of course, debts, and a debtor unfortunately cannot cut debts of his own volition. He can only secure relief through voluntary concessions made by his creditors or through the processes of bankruptcy or foreclosure when he ceases to be able to pay. There is also a tendency to confuse disproportionate indebtedness with over-capitalization. No necessary relationship exists between the two things.

"The owners of the railroads, that is to say, the stockholders, have suffered most severely in the depression, and the creditors have not escaped unscathed, for over a billion and a half of bonds are in default. The aggregate return paid on railroad investment has been very small. A large proportion of the bonds have continued to pay interest, but this is an advantage for which their holders paid. They exchanged the hope of any large return for the prospect of greater security, even in times of depression. The evils of disproportionate indebtedness lie, not in unjust return, but in the danger that both labor and property will be made to suffer, when business falls off, in the efforts to keep out of the hands of the sheriff. They also lie in the threat to future credit.

Burden of Heavy Indebtedness

"The railroads would undoubtedly have been much better off during the depression and would come through it in much better condition, had it not been for their heavy indebtedness. They could face the future with more equanimity, if the burden were lighter. When it comes to the railroads now in receivership or bankruptcy, the situation can be cured by financial reorganization, given a sufficient amount of foresight and resolution. The medicine may be hard to swallow, but the worse it tastes the quicker the cure. Three of the roads which have stood up best during the present depression, namely, the Union Pacific, the Santa Fe, and the Norfolk & Western, went through drastic reorganizations in the depression of the nineties.

"The problem is more baffling in the case of various heavily-burdened roads which have nevertheless managed to keep afloat. There is little reason to believe that it is practicable to accomplish voluntary reorganizations of the larger roads, and no way that I know of has yet been found of forcing a reorganization of a company which has kept clear of bankruptcy or its equivalent although it is possible that one may be discovered. Returning prosperity and better earnings coupled with a conservative financial policy for the future may show the way out. A committee of the Cabinet is looking into the entire situation. All that I can now say is that I could wish there were somewhat less tendency to regard railroad sojourn in the hands of a court as a national disaster to be avoided at any cost. Consolidations which operate like a financial reorganization may prove the answer for some of the weaker properties.

Important Improvements in Prospect

"The prospects for important improvements in railroad operation, equipment, service, and charges are excellent. In an address which I made not long ago, I stated that indications point toward a far greater use of light-weight metals in the construction of railroad equipment, but that prevailing high prices of those metals would prove a serious obstacle, and that these prices can and should be reduced. That comment did not receive the attention which I hoped it would, for it is important not only in itself but as an illustration of a general principle. Much money has been made in the past in sales to, and in other business dealings with, the railroads. Much business can be done with the railroads in the future, but it is essential that the opportunities be most carefully nursed and cultivated. No better way exists than to bring down prices to the lowest possible level. If this is not done, the opportunities are very likely to be lost or greatly curtailed.

"Let me warn you also against a tendency to regard consolidations as a panacea for railroad ills. They have their place, and it may be that they can with advantage even be made compulsory under certain conditions, a possibility to which my staff is devoting much study. But consolidations present many legislative, financial, and other practical difficulties. They are attractive to Wall Street, but by no means so attractive to the rest of the country, and when carried beyond a certain point they raise serious questions with respect to organization and management to which no certain answer can yet be given. It is more important right now to discover the changes which ought to be made in operation, equipment, service, and charges than to press for gigantic consolidations of properties.

"The final topic for consideration in these remarks has to do with competition and regulation. For the past dozen years or more in the United States, we have been promoting competition in transportation in every conceivable way and with a minimum of forethought as to what the results might be. In 1920, the investment in railroads was about 20 billions of dollars. Since that year about six and a half billions has been added, net, to that investment, and it is a conservative estimate that after making due allowance for facilities used in purely local transportation, nearly nineteen billions more have gone into agencies of transportation competitive, in one way or another, with the railroads. Facilities have more than doubled, and competition has increased by leaps and bounds.

Selfishness Makes for Waste

"It is a common notion that some sort of a community of interest is recognized among the big business and financial leaders, who are symbolized by Wall Street, which prevents them from treading on each other's toes to any undue extent. With some few exceptions, I have seen no evidence of this in transportation. Big industries will without compunction use any club available to force from the railroads concessions, just or unjust, in rates, service, or practices; and they have as little compunction in promoting the building of waterways and highways with government funds, if they can see any immediate gain for themselves. The railroads are no less ruthless when occasion permits. Current discussions of the problems created by these warring transportation agencies are very largely motivated by such considerations of immediate selfish advantage. The truck manufacturer, for example, is for whatever policy will enable him to sell more trucks, and similar considerations guide the cement manufacturer, the oil refiner, the farmer, the railroad employee, the railroad, and so on down the line.

"The time has surely come to deal with these matters with an eye to the general welfare of the community,

which in the end foots the bills. The present situation is shot through with waste, which somebody must pay for, and it is creating conditions which are destructive in many different ways. To my way of thinking, and I have so reported at some considerable length, it is folly to let these competitive forces run amuck, and it is up to the federal government to step in and exercise some centralized control over transportation in the interest, not of any particular groups, but of the entire body politic, including the man who pays the taxes.

Radical Changes in Prospect

"I have given you only some of the headlights of the transportation situation as I see it. Like everything else, it is full of trouble, but on the other hand it bristles with most attractive and alluring possibilities. We are probably on the verge of rather radical changes in the mechanics of rail transportation, to say nothing of the other forms of transport. While bright and fair would be too favorable a forecast, some sunshine may be expected.

"One final word before closing. In recent addresses I have ventured to suggest very briefly that the country ought to be giving thought to the subject of public ownership and operation of the railroads, including its dangers and possible safeguards against them, because this method of conducting the business may ultimately prove to be necessary. I find that these casual comments have been regarded by some as a subtle and very insidious form of propaganda. Not wishing to expose New York bankers to any such danger, I shall omit my usual reference to the subject."

N. R. A. Codes for Equipment and Appliances

Essential provisions for industries engaged primarily in railway supply business

WASHINGTON, D. C.

MOST of the companies engaged in the manufacture and sale of equipment, appliances, materials and supplies used by the railroads are now operating under National Recovery Administration codes of fair competition, of which over 456 have now been approved by President Roosevelt or by Administrator Johnson. Of the codes now in effect 10 represent industries engaged almost exclusively in the manufacture and sale of railroad equipment and appliances and parts thereof, while the codes proposed for 2 others of this class are still in the stage of consideration and conference with N.R.A. officials after public hearings and their approval is expected shortly. Many other companies whose products are largely sold to railroads and represent an even greater proportion of the railroad purchases are included under more general codes, such as those for the iron and steel, lumber, steel castings, gray iron foundry, anti-friction bearing, non-ferrous foundry, alloy casting, machine tool and forging machinery, and other industries.

The first code for an industry devoted exclusively to railroad products was that for the railway safety appliance industry, approved on January 12, while the most recently approved code is that for the locomotive appliance industry, approved on June 5. Pending final approval of specific codes the companies concerned have been operating under the terms of the President's Re-Employment Agreement. Most of the codes in this class, comprising about 200 companies, have been handled by one division of the N.R.A., now known as Division 2, under the direction of Deputy Administrator L. J. Martin and Assistant Deputy Administrator Fentress H. Kuhn, and have been approved by Administrator Johnson rather than by the President, under the practice by which only codes for industries having 50,000 or more employees are required to be signed by the President. Approval of these codes has been recommended to General Johnson by Division Administrators Malcolm Muir, A. R. Glancy, or W. A. Harriman.

Six of the codes which deal especially with railroad equipment and appliances are supplemental to the master code for the machinery and allied products industry, approved by President Roosevelt on March 17, which has a basic code authority as well as separate code authorities for the forty or more subdivisions, and operate under the wage, hour, and labor provisions of the basic code. These are the codes for the locomotive manufacturing industry, the small locomotive manufacturing industry, the locomotive appliance industry, the railway appliance manufacturing industry (not yet approved), the railway and industrial spring manufacturing industry, and the steel tire manufacturing industry.

The railway car appliances industry is treated as a division of the fabricated metal products manufacturing and metal finishing and metal coating industry, and the railway tie industry temporarily as a division of the lumber industry. A proposed code for the railroad contracting industry, as a sub-division of the construction industry, was the subject of a public hearing on May 21. There are separate codes for the railway safety appliance industry, the railway brass car and locomotive journal bearings and castings manufacturing industry, the railway car building industry, the chilled car wheel industry, and the railroad special track equipment manufacturing industry.

Each code approved is accompanied by a report to the President by General Johnson including a statement as to the expected economic effect of the code made by the deputy administrator or assistant in his report which shows the declines from 1929 to 1933 in the value of production, employment, and payrolls of the industry. Nearly all the reports relating to railway equipment and appliances call attention to the fact that these companies have suffered severely from the effects of the depression and the decline in railroad purchases, and most of them also call attention to the improved outlook for 1934 due to purchases made by railroads with the

aid of loans from the Public Works Administration. Declines in the value of production since 1929 ranging up to 95 per cent are reported. It is stated that the President's Re-Employment Agreement effected substantial increases in employment and payrolls and estimates are given of small increases in employment under the operation of the codes.

The following paragraphs state the essential provisions of the codes, aside from the provisions relating to collective bargaining which are found in all N.R.A. codes:

Locomotive Manufacturing

The code for the locomotive manufacturing industry, representing three units having 2,500 employees in 1933, was submitted by the Locomotive Institute and was approved on April 30, effective May 11. The industry is defined as including the building and manufacturing for sale and the selling of locomotives of more than 600 horsepower and finished or semi-finished component, repair, and replacement parts. Electric locomotives and parts may be built either by members of this subdivision under this code or by members of the electrical manufacturing industry under its code and locomotives of 600 to 1200 horsepower and parts may be built by the small locomotive subdivision under this code. The report to the President submitted by Administrator Johnson with the code stated that this industry had suffered noticeably from the effects of the depression, the value of its production having dropped from $66,870,000 in 1929 to $2,842,000 in 1933, a decrease of 95.8 per cent, while its factory employment had declined 72.6 per cent and its factory payrolls 90 per cent. Under conditions estimated to represent normalcy for the industry, it was stated, the code would increase employment about 9 per cent.

Pending the election of a permanent code authority the Locomotive Institute is to act as the code authority but is required to amend its articles of association and by-laws to the satisfaction of the administrator. The members are to elect a permanent code authority of three members and the administrator may, in his discretion, appoint one. Willits H. Sawyer, of New York, has been appointed as the administration member. The code contains no article relating to "unfair practices" or prices and is based on the provisions as to hours, wages, and general labor provisions of the basic code.

Small Locomotive Manufacturing

The code for the small locomotive manufacturing industry, representing 14 units having 500 employees in 1933, was submitted by the Associated Builders of Small Locomotives and was approved on May 5, effective on May 16. The industry is defined as the manufacture and sale of locomotives of 600 horsepower or less and parts thereof. The report to the President referred to the industry as having suffered to a very great extent from the effects of the depression, its production having dropped from $6,714,000 in 1929 to about $1,009,000 in 1933, a decline of 85 per cent, while its employment decreased 67.4 per cent. It was estimated that the code should increase factory employment about 8.8 per cent and factory payrolls about 2.7 per cent over the corresponding figures of June, 1933. The code authority is to consist of the executive committee of the Associated Builders of Small Locomotives, of not less than three or more than seven members, and one additional member to be elected if desired by non-members. The Administrator may appoint one member. The code adopts the wage, hour, and labor provisions of the basic code and includes an article on trade practices prohibiting rebates, excess allowances and discriminatory privileges to customers, misleading advertising, and the circulation of threats of legal proceedings which tend to have the effect of harassing competitors or intimidating their customers. There are no provisions as to prices.

Railway and Industrial Spring Industry

The code for the railway and industrial spring industry, a subdivision of the machinery and allied products industry, was presented by the Railway and Industrial Spring Association and was approved on April 23, effective on May 4. It represents eight units employing 756 persons in 1933. The value of production dropped from $9,672,000 in 1929 to $2,400,000 in 1933, a decrease of 75.3 per cent, while employment dropped 38.9 per cent and payrolls 66.6 per cent. This subdivision is defined as including only the business of producing and selling hot formed helical, elliptical and special springs and/or pressed steel journal box lids and/or pressed steel spring plates. The code adopts the wage, hour, and labor provisions of the basic code. The code authority is to consist of the board of directors of the association, of seven members, one additional member appointed by the Administrator and one additional member elected by employers who are not members of the association. The code contains a brief article as to unfair practices prohibiting commercial bribery.

Steel Tire Manufacturing

The code for the steel tire manufacturing industry, including four units employing 1,027 persons in 1933, was presented by the American Steel Tire Manufacturers' Association, as a subdivision of the machinery and allied products industry, and was approved on April 23, effective on May 4. The industry is defined as including only the business of manufacturing and selling locomotive and railroad car wheel tires, other annular weldless rolled steel sections, and steel tired wheels for railroad, railway, or industrial use. The report of the administrator states that the volume of production dropped from $11,727,000 in 1929 to $5,080,000 in 1933, or a decrease of 56.7 per cent, that the average employment dropped 26.9 per cent, and the payrolls 58.1 per cent. This code adopts the wage, hour, and labor provisions of the basic code. The code authority consists of the board of directors of the association, consisting of four members, and provision is made for one additional member to be elected by non-members, and for an administration member. It is provided that any employer in the subdivision shall be eligible for membership in the association. The only unfair practice referred to is that of commercial bribery.

The Machinery and Allied Products Industry code provides for a maximum 40-hour week and eight-hour day with provision for overtime not exceeding eight hours a week for six weeks in any 26-week period, at time and one-half. The minimum wage rates range from 32 to 40 cents an hour.

Railway Car Appliances

The code for the railway car appliances industry, a division of the fabricated metal products industry, submitted by the Railway Car Appliances Association, was approved on February 9, effective February 19. The industry is defined as including the manufacturing, assembling, and marketing of articles composed principally of ferrous metal specially designed for use in the construction or repair of railway cars, except by car builders and except castings, wheels, springs, draft gears, steel tires, brake beams, and articles covered under the code of the railway safety appliance industry.

For a period not to exceed 60 days following the effective date the supplementary code committee of the association was to constitute a temporary supplementary code authority, but the code provided for the election of a supplementary code authority consisting of five members to be elected by the members of the industry, including one not a member of the association, and one member to be appointed by the Administration.

The code adopts the wage, hour, and labor provisions of the fabricated metal products code. Article V includes four trade practice rules, prohibiting the sale of any product below cost, imitation of trade mark or trade name of a competitor's product, misbranding, and misleading advertising. In determining costs all overheads, selling, collection, distribution and delivery expense, the percentages applicable to the year 1926 may be used if lower than current figures but this rule is not to apply to products sold for experimental or test purposes, nor to samples, nor to products sold for repair purposes in small quantities. Selling below cost to meet existing competition is not to be deemed a violation of this rule.

The code authority consists of: W. E. Sharp, Grip Nut Company, Chicago, Ill.; G. N. DeGuire, Ajax Hand Brake Company, New York City; A. C. Moore, Chicago Railway Equipment Company, Chicago, Ill.; S. L. Beymer, Hutchins Car Roofing Company, Detroit, Mich., and H. S. Kimball, Fabricated Metal Products Federation, Washington, D. C.

Railway Car Building

The code for the railway car building industry, having 16,508 employees in 1933, was submitted by the American Railway Car Institute, representing 21 units or 79 per cent of the industry and was approved on February 16, effective February 21. The industry is defined as including the manufacturing or building for sale and selling or commercially repairing passenger, freight, tank, service, and maintenance cars of every kind, for steam or electric railways or trolley lines, and parts and accessories to be assembled by the manufacturer for sale as part of the finished product. This language was substituted, by order of the Administrator, for that which had been proposed which would have included "fabricated or processed component or repair or replacement parts for use or for sale as such for installation in or for replacement or repairs of any of such cars but excepting specialties (and component repair and/or replacement parts therefor) manufactured, assembled or sold by others than persons engaged in the business of building or commercially repairing any of such cars."

General Johnson's report stated that this industry had been seriously affected by the depression, as its prosperity is in direct ratio to the purchasing power of the railroads; that its production had decreased from $328,220,204 in 1929 to $99,657,122 in 1931, and that undoubtedly the figures for 1933, when available, would show a continued decrease. The 21 companies members of the Institute operated 52 plants representing a capital investment of $259,955,000 in 1929 and $270,905,000 in 1933. "Competition within the industry is limited," the report said, "but the railroads themselves maintain their own shops for repair work and also build cars." Employment for the entire industry in 1929 amounted to 46,119 and the 21 concerns members of the Institute employed 37,731 persons in 1929 but only 6,556 in 1933.

The code established a 40-hour week and an 8-hour day, except that a period of six weeks in each consecutive six-months period is allowed during which overtime not to exceed eight hours in any one week is allowed, at time and one-half for overtime. A minimum wage of 40 cents an hour is provided for employees engaged in plant operation, except that a minimum ranging from 35 to 37 cents is provided for 12 cities and 32 cents is provided for plants located in certain southern states.

The code contains an article concerning sales which provides that when two or more manufacturers are invited to submit bids or proposals they shall notify the secretary of the Institute or other agency designated by the code authority within 48 hours. They are also required to submit a written statement of the proposal or bid, stating terms of payment and delivery and the price, which shall not be less than the estimated cost computed according to the method approved by the code authority and the Administrator. The secretary is then to notify the other members of the bids and "no employer shall sell the products of the industry at a price or on terms and conditions more favorable to the purchaser" than those set forth in the submission to the secretary, except upon the re-opening of bids. This code also contains an article on unfair practices prohibiting secret rebates or the granting of an option or the making of an agreement whereby the customer is given the right to require the manufacturer to build and deliver, but is under no obligation to take or pay for, any products of the industry additional to those stated in the order, at the price or approximately at the price stated in the order.

The code authority consists of: J. F. MacEnulty, general sales manager for receivers, Pressed Steel Car Company, New York City, chairman; C. J. Hardy, president, American Car & Foundry Company, New York City; C. A. Liddle, president, Pullman Car & Manufacturing Company, Chicago; L. N. Selig, president, General American Tank Car Corporation, Chicago; F. L. Fay, president, Greenville Steel Car Company, Greenville, Pa.; F. E. Symons, president, Ralston Steel Car Company, Columbus, Ohio; R. K. Weber, president, Mt. Vernon Car Manufacturing Company, Mt. Vernon, Ill., and J. E. Muhlfeld, New York City, as the administration member.

Railroad Special Track Equipment

The code for the railroad special track equipment manufacturing industry, representing 18 units employing 1,621 persons in 1933, was approved on April 6, effective at once. The industry is defined as including the manufacture and sale of all special T-rail track work of carbon steel, manganese steel and/or other metals for use in railroad track made with standard T-rails of 60 pounds per yard and heavier, including all switches, switch points, switch stands, ground throws, frogs, crossings, stock and special connecting rails, guard rails, guard rail clamps, bridge rails and expansion joints and repairs made and all parts furnished for these items. It does not include electrical apparatus for operating any special track equipment, compromise joints, tie plates, rail braces, gage rods, except when furnished in connection with the above specified items, or rail except when sold in connection with the above items and on which additional work other than drilling is performed.

The report says the total production for 18 concerns in the industry in 1928 was $18,000,000 and that for 15 concerns in 1933 was $1,400,000, a decrease of 92.2 per cent. The number of persons employed in 1933 represented a decrease of 51.7 per cent under 1929 and the payrolls had declined about 78 per cent.

The code provides for a maximum of eight hours a day and 40 hours a week but with exceptions allowing 48 hours a week, with time and one-half for overtime,

during any six weeks in any six months period. The minimum wages are 32 to 40 cents an hour.

The code authority established consists of one representative from each member of the industry complying with the requirements of the code and not to exceed three members appointed by the Administrator.

This code includes nearly two pages relating to trade practices, including provision for the posting of prices, and two more pages as to unfair practices. It is provided that each member of the industry shall file with the secretary of the code authority a schedule of its prices applying to acknowledged standard frogs, switches, standard parts thereof, and appurtenances, which are not to be changed without the filing of a new list. The prices so filed shall be f.o.b. each member's plant or plants, and "except to meet existing competition shall be not less than the cost of such product to such member determined by a method to be established by the code authority and approved by the administrator," and "all prices so filed shall be published." However, a provision in the order of the Administrator approving the code includes a condition that these provisions, insofar as they prescribe a waiting period between the filing and the effective date of revised price lists or revised terms and conditions of sale and payment, are stayed pending further order either within a period of 60 days from the effective date of the code, or after the completion of a study of open price associations being conducted by the National Recovery Administration.

Products of the industry that are not determined as standard are to be regarded as "special" and be subject to the following conditions: No member of the industry will sell any special product to any purchaser, (a) at a price f.o.b. any of its plants less than the cost of such product, determined by a method to be established by the code authority subject to the approval of the Administrator to such member at such plant, or (b) at a price f.o.b. point of delivery to the purchaser less than the said cost of such product to such member with carrying charges at published tariff rates added; provided, however, (c) that selling below cost to meet existing competition in price by a competitor whose prices do not violate this code on products of equivalent specifications shall not constitute a violation of this code; and provided (d) that selling below cost in order to dispose of any obsolete items or materials shall not be deemed a violation of the code.

Whenever any member of the industry shall file with the code authority a written complaint alleging that any other member of the industry has made a sale of a product at a price which constitutes a violation of the code and the code authority shall declare by a vote of three-fourths of all its members entitled to vote that said complaint appears to be justified the code authority shall have power to investigate the price at which said sale shall have been made. The unfair practices listed as constituting a violation of the code include such practices as bribery of an employee of another employer; procuring trade secrets or confidential information of competitors; substituting superior materials for those specified; payment of rebates, unearned discounts or excess allowances; misleading advertising; misbranding; shipping of goods on consignment; postdating or predating of quotations, orders, invoices, statements, or other sales documents. Maximum rates of discount for early payment are also prescribed.

Railway Safety Appliance Industry

The code for the railway safety appliance industry, representing 15 units employing 6,000 persons in 1933, was approved on January 12, effective on January 29. The report states the investment in the industry at approximately $113,000,000 and the number of wage earners in normal times as about 11,000. In 1928 the value of production was about $45,000,000, at the rate of approximately 54 per cent of capacity and in 1933 it was estimated at about 11 per cent of capacity. It provides for a normal work day of 8 hours and a work week of 40 hours with a maximum average of 40 hours per week in any four-months period. Minimum wage rates of 35 cents an hour for women and 40 cents an hour for men are provided.

The industry is defined as comprising the design, development, manufacture, sale, and installation of power brake, signal and train-control systems, and parts, and its products as designed for the safeguarding of movements of cars, locomotives, or trains. The report says that its single customer, therefore, is the railways, "which customarily place orders on their own initiative as the need for equipment arises, rather than upon solicitation by members of the industry."

The code authority consists of: W. W. Salmon, president, General Railway Signal Company, New York City, chairman; G. A. Blackmore, president, Union Switch & Signal Company, Swissvale, Pa.; L. R. Burch, president, New York Air Brake Company, New York City; P. R. Forman, vice-president and general manager, National Pneumatic Company, New York City; C. A. Rowan, president Westinghouse Air Brake Company, Wilmerding, Pa.; T. George Stiles, president, T. George Stiles Company, Arlington, N. J., and W. H. Sawyer, New York City, as the administration member.

Chilled Car Wheel Industry

The code for the chilled car wheel industry, representing 23 units having 3,130 employees in 1933, was presented by the Association of Manufacturers of Chilled Car Wheels and was approved on February 17, effective on February 26. It provides for a normal maximum 40-hour week and 8-hour day except that employees may work 48 hours a week for any six weeks in any 26-week period, but overtime is to be paid at the rate of time and one-half. The code authority consists of five members of the industry, four selected at a meeting called for the purpose and the president of the association, and one appointed by the administration, as follows: D. H. Sherwood, vice-president, Maryland Car Wheel Company, Baltimore, Md., chairman; E. P. Waud, vice-president, Griffin Wheel Company, Chicago; J. A. Kilpatrick, president, Albany Car Wheel Company, Albany, N. Y.; W. F. Cutler, president, Southern Wheel Company, New York City; J. M. Keller, manager of foundries, American Car & Foundry Company, St. Louis; and H. B. Horton, treasurer, Chicago Bridge & Iron Works, Chicago, Ill., the administration member.

Railway Brass Car and Locomotive Journal Bearings and Castings

The code for the railway brass car and locomotive bearings and castings industry was submitted by the Association of Manufacturers of Railway Brass Car and Locomotive Journal Bearings and Castings, Chicago, Ill., and approved on January 29, effective on February 12. The industry includes eight units, employing 2,100 persons in 1933, and is defined as including the business of producing brass and/or bronze wearing metal castings, steam metal castings, and journal bearings, lined or unlined, for steam and electric railroad cars and locomotives (except as produced by a company engaged in

building locomotives in plants where such locomotives are built, and except rough castings for street railways). The code provides for a maximum work day of eight hours and a 40-hour week but with provision for overtime not exceeding eight hours in any week for four weeks in any 26 weeks' period.

The minimum wages are 32 cents an hour in the South and 40 cents an hour in the North. The code authority is to consist of five members of the industry to be elected and not to exceed three appointed by the Administrator. No article is included as to fair practices but the code contains an article on price increases as follows: "Whereas the policy of the act to increase real purchasing power will be made more difficult of consummation if prices of goods and services increase as rapidly as wages, it is recognized that price increases, except such as may be required to meet individual cost, should be delayed. But when made, such increases should, so far as possible, be limited to actual additional increases in the seller's costs."

Proposed Codes

The proposed code for the railway appliance manufacturing industry was submitted by the Railway Appliance Manufacturers' Association, representing the manufacturers of railway hand cars, push cars, velocipede cars, motor cars, and special appliances thereof, locomotive water cranes and parts thereof, as a subdivision of the machinery and allied products industry. It proposes a temporary code authority, to be succeeded by a permanent code authority which may include representation of companies not members of the association. It provides for the use of an accounting system conforming to principles of a uniform method of costing to be formulated by or approved by the code authority and contains an article prohibiting sales at less than cost, with certain exceptions, as well as articles relating to the maintenance of price lists and prohibiting specified unfair practices.

Locomotive Appliance Industry

The Locomotive Appliance Institute proposed a code for the locomotive appliance industry, as a subdivision of the machinery and allied products industry, which was the subject of a hearing on April 27 and which was approved by Administrator Johnson on June 5. This subdivision is defined as including the manufacture for sale of appliances, devices, or attachments, and replacement parts thereof, which have to do with the operation of a locomotive and parts thereof, and as intended to include all those engaged in such manufacture and/or sale except that the code is not intended to include valves and fittings made by producers who are participants in the Valve and Fitting Institute. The code requires the establishment of a uniform cost accounting system and open price lists and the code authority is empowered to establish a lowest reasonable cost for the industry in the event of emergencies due to destructive price cutting. In such event, with the approval of the Administrator, no member of the industry shall sell below the costs so arrived at. The code becomes effective on June 16.

THE ANNUAL MEETING of the National Association of Railroad Enthusiasts will be held on June 21, at Room 311, North Station Terminal Building, Boston, Mass. This group, with a steadily increasing membership, consists of railway employees and others having as a common bond a deep and abiding interest in railroads.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended May 26 totaled 624,567 cars, an increase of 13,425 cars as compared with the preceding week and of 79,016 cars as compared with the corresponding week of last year. It was also an increase of 103,318 cars as compared with 1932. Loading of l.c.l. merchandise and grain and grain products showed decreases as compared with the week before and as compared with last year, but all other commodity classifications showed increases in both respects. The increase over the preceding week included heavy shipments of coal and ore in anticipation of a threatened steel strike. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading

Week ended Saturday, May 26, 1934

Districts	1934	1933	1932
Eastern	144,154	128,225	122,144
Allegheny	126,244	102,589	101,881
Pocahontas	43,051	35,349	32,287
Southern	87,185	81,746	76,865
Northwestern	90,026	69,782	62,116
Central Western	86,537	80,031	81,162
Southwestern	47,370	47,829	44,794
Total Western Districts	223,933	197,642	188,072
Total All Roads	624,567	545,551	521,249
Commodities			
Grain and Grain Products	28,252	34,482	32,008
Live Stock	16,285	15,174	16,304
Coal	109,077	82,380	72,852
Coke	6,945	4,162	3,202
Forest Products	25,894	22,820	18,003
Ore	29,832	10,528	2,544
Mdse. L. C. L.	164,111	166,748	180,508
Miscellaneous	244,171	209,257	195,828
May 26	624,567	545,551	521,249
May 19	611,142	535,719	515,628
May 12	601,739	534,806	517,260
May 5	604,205	527,118	533,951
April 28	608,654	538,809	554,197
Cumulative total, 21 weeks	12,322,132	10,418,053	11,653,051

Car Loading in Canada

Car loadings in Canada in the week ended May 26 totaled 39,514 cars, according to the compilation of the Dominion Bureau of Statistics. This week, which included a holiday on May 24, showed a decrease from the previous week's total of 5,156 cars, but was an increase of 7,338 cars over the corresponding week a year ago.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
May 26, 1934	39,514	23,278
May 19, 1934	44,670	23,712
May 12, 1934	43,960	23,506
May 27, 1933	32,176	17,743
Cumulative Totals for Canada:		
May 26, 1934	871,343	494,324
May 27, 1933	705,283	364,358
May 28, 1932	870,236	444,193

CONTINUING, ALONG WITH OTHER BRITISH RAILWAYS, the policy of supplying prospective patrons with all possible transport needs, the London Midland & Scottish, in a recent advertisement appearing in the Railway Gazette (London), calls attention to highway service which it provides for livestock by means of "motor floats." These "motor floats" are specially-designed motor trucks for the transfer of livestock to or from markets or fairs. They are equipped with ramps "so constructed as to insure easy and safe loading and dispatch of all classes of animals."

NEWS

Four Months Net Above 1933 by 168 Per Cent

Total of $144,546,047 compares with $53,875,770 for corresponding period of last year

Class I railroads for the first four months of 1934 had a net railway operating income of $144,546,047, which was at the annual rate of return of 2.14 per cent on their property investment, according to reports compiled by the Bureau of Railway Economics. In the first four months of 1933, their net railway operating income was $53,875,770 or 0.79 per cent. Operating revenues for the four months totaled $1,065,010,217, compared with $881,670,502 for the same period in 1933, or an increase of 20.8 per cent. Operating expenses amounted to $793,878,538, compared with $702,037,603 for the same period in 1933, an increase of 13.1 per cent.

Class I railroads in the four months paid $84,509,065 in taxes, compared with $87,015,458 for the same period in 1933, a reduction of 2.9 per cent. For April alone, the tax bill amounted to $21,556,930, a reduction of $266,576 or 1.2 per cent under April 1933.

Thirty-five Class I railroads failed to earn expenses and taxes in the first four months of 1934, of which 10 were in the Eastern district, 5 in the Southern and 20 in the Western.

Class I railroads for April had a net income of $32,264,609, which, for that month, was at the rate of 1.88 per cent. In April, 1933, their net was $19,351,462, or 1.12 per cent. Operating revenues for April amounted to $265,390,879, compared with $224,859,042 in April 1933, an increase of 18.0 per cent. Operating expenses in April totaled $200,186,744, compared with $173,299,382 in the same month in 1933, or an increase of 15.5 per cent.

Railroads in the Eastern district for four months had a net of $94,853,451 at the rate of 2.86 per cent. For the same period in 1933, their net was $50,242,111 or 1.50 per cent. Operating revenues in the Eastern district for four months totaled $562,537,567, an increase of 23.4 per cent above the corresponding period in 1933, while operating expenses totaled $404,740,644, an increase of 17.3 per cent. Class I railroads in the Eastern district for April had a net of $21,342,672, compared with $12,650,587 in April 1933.

Class I railroads in the Southern district for four months had a net of $25,127,804, at the rate of 2.22 per cent. For the same period in 1933, their net amounted to $13,806,855, at the rate of 1.20 per cent. Operating revenues in the Southern district for four months amounted to $144,637,127, an increase of 17.8 per cent above the same period in 1933, while operating expenses totaled $104,557,708, an increase of 11.2 per cent. Railroads in the Southern district for April had a net of $5,422,755, compared with $4,465,694 in April, 1933.

Class I railroads in the Western district for four months had a net of $24,564,792, at the rate of 1.07 per cent. For the same four months in 1933, they had a net railway operating deficit of $10,173,196. Operating revenues in the Western district for four months amounted to $357,835,523, an increase of 18.1 per cent, while operating expenses totaled $284,580,186, an increase of 8.3 per cent. For April, the railroads in the Western district reported a net of $5,499,182, compared with $2,235,181 in April, 1933.

CLASS I RAILROADS—UNITED STATES

Month of April

	1934	1933	Per cent increase
Total operating revenues	$265,390,879	$224,859,042	18.0
Total operating expenses	200,186,744	173,299,382	15.5
Taxes	21,556,930	21,823,506	D.1.2
Net railway operating income	32,264,609	19,351,462	66.7
Operating ratio—per cent	75.43	77.07	...
Rate of return on property investment	1.88%	1.12%	...

Four months ended April 30

	1934	1933	Per cent increase
Total operating revenues	$1,065,010,217	$881,670,502	20.8
Total operating expenses	793,878,538	702,037,603	13.1
Taxes	84,509,065	87,015,458	D.2.9
Net railway operating income	144,546,047	53,875,770	168.3
Operating ratio—per cent	74.54	79.63	...
Rate of return on property investment	2.14%	0.79%	...

I. C. Adds Memphis-Chicago Train

The Illinois Central, on June 2, added a third daily through train to its Memphis-Chicago passenger service, the train being known as "The World's Fair Special." It leaves Memphis, Tenn., at 6:05 p.m. and arrives in Chicago at 7:15 the next morning; returning, leave Chicago at 11:05 p.m.

Western-Southern Class Rates to Be Investigated

Interstate Commerce Commission, by order of May 26, has launched inquiry on own motion

By order of May 26, the Interstate Commerce Commission on its own motion has instituted an investigation into the all-rail interterritorial class rates between western trunk line and southern territories. The rates thus brought in issue have been unsatisfactory for some years to the shipping interests and certain state railroad commissions; and lately also to the carriers since the commission denied the continuance of relief from the provisions of the fourth section of the interstate commerce act in connection with rates between these territories. The notice reads:

"Following the publication of the joint rates between Illinois territory and the south, which became effective on or about January 15, 1928, pursuant to *Southern Class Rate Investigation,* and supplemental reports, other shippers, particularly those in southern Wisconsin and the Twin Cities, sought from the carriers a corresponding revision of their class rates. W.t.l. carriers declined to make any temporary adjustment, apparently fearing that it might prejudice their position in the then pending No. 17000, Part 2, *Western Trunk Line Class Rates,* in which the class rates between w.t.l. and southern territories were then in issue. In the original report in the latter, decided May 6, 1930, the commission found the record inadequate upon which to determine a basis for rates between these territories; but stated that respondents would be expected to adjust the rates between the South on the one hand and on the other southern Wisconsin, the Twin Cities, and such other w.t.l. points reasonably entitled to similar treatment, with relation to the rates established in conformity with *Southern Class Rate Investigation, supra.* No such adjustment was made.

"Subsequently, denial of relief from the fourth section of the act by fourth section order No. 11071 precipitated proposals from the carriers to cancel whatever joint class rates existed between w.t.l. territory and the Mississippi Valley, and the proportional rates to and from Ohio and Mississippi river crossings applicable on traffic between w.t.l. and southern territories. After their suspension, these proposals were found not justified by division 5 in *Class Rates Between Southern and W. T. L. Points,* decided January 25, 1934. As recited in that report, the w.t.l. and

southern carriers were unable to agree upon a basis of rates.

"In the meantime, four complaints have been filed. They assail the reasonableness of the class rates for the future between all points in North Dakota, South Dakota, Nebraska, and the northeastern portion of Kansas, on the one hand, and southern territory on the other. Disposition of these cases could result in a partial readjustment only of the rates to and from w.t.l. territory, and undoubtedly would provoke further complaints from the less-distant w.t.l. states. It is apparent also that the carriers can not agree upon a rate basis; and, if they were to agree following a decision in the pending reopening by order of October 28, 1932, of *Western Trunk Line Class Rates, supra*, it is quite probable that when published the readjustment would be protested by dissatisfied shippers demanding suspension and investigation. That reopening order did not again bring in issue the class rates between w.t.l. and southern territories.

"Upon full consideration of all aspects of the entire situation, the commission voted to institute on its own motion a proceeding of investigation and inquiry into and concerning the interterritorial class rates applicable on interstate commerce moving all rail, including the charges resulting therefrom, between points in w.t.l. and southern territories, with a view to determining whether such rates and charges are unreasonable, or are unduly prejudicial to or unduly preferential of particular localities, persons, or descriptions of traffic, or are otherwise unlawful; and to make such findings and orders as may appear proper. All carriers by rail have been made respondents."

This investigation will be assigned for hearing at such times and places as the commission may hereafter designate, together with the formal complaints. Because the interested parties will require ample time for the satisfactory preparation of evidence, especially for the compilation of the data required of respondents for introduction at the initial hearing, the first hearing will not be held before the fall. It is intended to set the initial hearing in St. Louis, Mo., and to hear there the respondents' case only. Respondents will be expected at that hearing to make their proposals for the readjustment of the rates in issue, to introduce their direct evidence in support of such proposals and other admissible evidence, and to present their witnesses for cross-examination. As part of their direct case respondents are asked to prepare and introduce in evidence the data outlined in an appendix. Upon conclusion of this initial hearing an adjournment of a few weeks will be taken in order to afford state commissions and shippers an opportunity to prepare their plans for the lawful readjustment of the rates in issue and their sustaining evidence. It is intended to hold hearings at only a very few convenient places within both w.t.l. and southern territories.

No cases involving any of the rates between points within the scope of this investigation, whether decided or now pending, have been reopened. This is not to be construed as indicating that conclusions different from those reached in such cases may not be finally reached in this investigation. Where articles now move on class rates, interested parties will not be precluded from presenting evidence relating to individual articles tending to show that some different disposition should be made of the rates thereon than may be determined upon for the classes to which they belong. One of the questions prominently arising if joint rates are proposed or suggested is which of the classifications should govern the through movement, in view of the fact that different classifications govern within the several territories through which this interterritorial class-rate traffic moves. Any interterritorial less-car-load commodity rates from and to the points within the scope of this investigation will be considered as in issue. All parties are requested to make every effort to condense their evidence; and to co-operate with one another to the end that merely cumulative evidence may be avoided.

First Pullman Car's Diamond Jubilee

The Pullman Company is planning to celebrate the 75th anniversary of "Pullman No. 9" at A Century of Progress, beginning September 1. Pullman No. 9, which is now on exhibition in the dome of the Travel and Transport building, left Bloomington, Ill., on September 1, 1859, for Chicago on its initial trip. This was the first trip of a Pullman "palace" car with passengers.

Results of Pennsylvania's Storedoor Services—A Correction

The 120,000 l.c.l. shipments which were given storedoor collection and delivery service by the Pennsylvania during March represented almost 30 per cent of all l.c.l. freight shipments on the P. R. R. during that month. Because of a typographical error the proportion of March shipments handled in the c. & d. service was given as "nearly 50 per cent" when these figures were previously published in the article entitled "Pick-Up and Delivery Service Proving Worth," which appeared in the *Railway Age* of May 26, page 785.

Net Deficit for Three Months $16,035,242

The 149 Class I railways in the first three months of 1934 had a net deficit after fixed charges of $16,035,242, as compared with $94,880,325 in the corresponding period of last year, according to the Interstate Commerce Commission's monthly compilation of selected income and balance-sheet items. For the month of March there was a net income of $10,349,446 as compared with a net deficit in March, 1933, of $31,678,401. The compilation follows:

SELECTED INCOME AND BALANCE-SHEET ITEMS OF CLASS I STEAM RAILWAYS

Compiled from 144 reports (Form IBS) representing 149 steam railways

TOTALS FOR THE UNITED STATES (ALL REGIONS)

For the month of March 1934	For the month of March 1933	*Income Items*	For the three months of 1934	For the three months of 1933
$52,037,641	$10,805,519	1. Net railway operating income	$112,247,527	$34,524,303
14,648,246	14,431,460	2. Other income	40,410,024	41,273,760
66,685,887	25,236,979	3. Total income	152,657,551	75,798,063
11,064,453	10,724,573	4. Rent for leased roads	33,006,172	32,289,156
43,371,087	44,231,498	5. Interest deductions	130,212,687	132,479,961
1,900,901	1,959,309	6. Other deductions	5,473,934	5,909,271
56,336,441	56,915,380	7. Total deductions	168,692,793	170,678,388
10,349,446	*d 31,678,401*	8. Net income	*d 16,035,242*	*d 94,880,325*
		9. Dividend declarations (from income and surplus):		
5,617,641	792,376	9-01. On common stock	19,441,677	13,226,739
.....	524,707	9-02. On preferred stock	3,296,100	3,300,165

BALANCE-SHEET ITEMS

Selected Asset Items

	Balance at end of March 1934	Balance at end of March 1933
10. Investments in stocks, bonds, etc., other than those of affiliated companies (Total, Account 707)	$752,537,129	$568,964,859
11. Cash	302,372,772	256,155,966
12. Demand loans and deposits	31,099,395	33,665,852
13. Time drafts and deposits	42,076,369	19,216,453
14. Special deposits	47,389,677	37,958,306
15. Loans and bills receivable	7,353,125	11,275,580
16. Traffic and car-service balances receivable	60,933,446	46,188,994
17. Net balance receivable from agents and conductors	42,304,099	38,250,784
18. Miscellaneous accounts receivable	142,255,032	138,048,722
19. Materials and supplies	299,829,860	311,923,442
20. Interest and dividends receivable	37,401,863	38,556,782
21. Rents receivable	2,680,191	2,761,603
22. Other current assets	4,146,715	4,314,061
23. Total current assets (Items 11 to 22)	1,019,842,544	938,316,545

Selected Liability Items

24. Funded debt maturing within six months*	264,057,184	155,692,467
25. Loans and bills payable†	340,509,600	320,938,031
26. Traffic and car-service balances payable	72,623,999	59,865,369
27. Audited accounts and wages payable	203,047,060	207,898,893
28. Miscellaneous accounts payable	47,809,043	59,550,278
29. Interest matured unpaid	263,129,995	189,431,079
30. Dividends matured unpaid	16,007,583	15,517,512
31. Funded debt matured unpaid	112,161,338	59,922,646
32. Unmatured dividends declared	833,191	588,721
33. Unmatured interest accrued	105,215,729	106,869,656
34. Unmatured rents accrued	29,983,538	27,972,191
35. Other current liabilities	19,865,682	14,394,377
36. Total current liabilities (Items 25 to 35)	1,211,186,758	1,062,948,753

* Includes payments which will become due on account of principal of long-term debt (other than that in Account 764, Funded debt matured unpaid) within six months after close of month of report.

† Includes obligations which mature less than two years after date of issue.

d Deficit.

Railways Required to Register Securities with New Commission

Under the terms of the conference report on the securities exchange bill, adopted by the Senate and the House on June 1, railroads will be required to register their securities with the new Securities and Exchange Commission to be created by the act but so far as the ordinary reports required by the commission are concerned will be permitted to file duplicates of the reports they now file with the Interstate Commerce Commission. In the separate bills passed by the House and the Senate an effort was made to exempt the railroads from the requirements of registration and filing any additional reports with the new commission but the language was changed in conference in such a way that it is now possible for the new commission to require additional reports from railroads if it so desires. The House bill had contained a proviso that no additional requirements shall be imposed upon carriers subject to section 20-a of the interstate commerce act but the language finally adopted is as follows:

"And, in the case of carriers subject to the provisions of section 20 of the interstate commerce act, as amended, or carriers required pursuant to any other act of Congress to make reports of the same general character as those required under such section 20, shall permit such carriers to file with the commission and the exchange duplicate copies of the reports and other documents filed with the Interstate Commerce Commission, or with the governmental authority administering such other act of Congress, in lieu of the reports, information, and documents required under this section and section 12 in respect of the same subject matter."

Senator Steiwer, who had proposed an amendment to exempt the railroads from the requirement of registration and filing additional reports, called attention in the Senate to the effect of the changes in the language. Members of the conference committee said that while there was no prohibition against the requirement of information in addition to that which is submitted to the Interstate Commerce Commission, it would be very difficult to conceive of supplemental information which could be required by the new commission in addition to that now required by the Interstate Commerce Commission. To this Senator Steiwer retorted that he thought the requirements that may be made of the railroads will be limited only by the imagination of the clerks who submit the program to the new commission for its approval and that the commission will be enabled to make very exacting and very expensive requirements of the rail carriers.

Trucking Cost Formula Committee Meets in Washington

The cost formula provided by the trucking code to be used by code authorities in determining whether minima for rates and tariffs filed by members provide sufficient revenue to meet the cost of service was discussed at a meeting in Washington on June 6 and 7. Realizing that there exist many varied types of operations and differences in methods and requirements, it was decided by the American Trucking Associations that a representative committee of qualified members of the industry should be called to Washington to consider the various phases of this important matter and make recommendations to the national code authority as to the form, contents and provisions for application of the formula, to be presented to the National Recovery Administration for adoption. It was decided that the members present at this meeting be representatives of all the various types of operations, including cartage, dump trucks, tank trucks, furniture moving, common and contract carriers, and other classes of haulage.

It is expected that following this general meeting a committee will be selected to perfect a formula to be considered by the national code authority.

Burlington Fast Mail to Carry Passengers

The Chicago, Burlington & Quincy has added passenger service to its fast mail train, No. 15, between Chicago and Omaha, Neb. The train will carry sleepers with individual bedrooms and dining car service will be provided.

Bill for Co-Ordinator's Expenses Passed

The bill providing for an assessment of $2 a mile on the railroads for the expenses of the federal co-ordinator of transportation for the year beginning on June 16 was passed by the House on June 4 without debate and was passed by the Senate on June 6.

New Train to Cedar Rapids

The Chicago & North Western, on May 27, placed a new passenger train in service between Chicago and Cedar Rapids, Iowa. The train leaves Chicago at 6:05 P. M. and arrives in Cedar Rapids at 11:25 P. M. Eastbound, the train is known as "The Chicagoan" and leaves Cedar Rapids at 9 A. M. and arrives in Chicago at 2:10 P. M.

Mexican Railway Operating Figures Encouraging

The net operating income on the National Railways of Mexico for the first three months of 1934 totaled $6,783,371, as compared with $1,394,422 during the same period of 1933, an increase of 386.5 per cent. Gross operating earnings for the first quarter amounted to $25,171,022 as compared with $18,667,563 for the same period in 1933. Operating expenses increased from $17,273,141 to $18,387,651.

Judge Orders Frisco and Missouri Pacific Plans Speeded

Trustees of the Missouri Pacific and the St. Louis-San Francisco have been directed by United States District Judge Charles B. Faris to expedite their reorganization plans so that the roads can be taken out of bankruptcy. He said the roads should either perfect reorganization plans soon or consider dismissal of debtors' petitions under which they were given time to reorganize their capital structures.

Georgia Congressmen Ask Freight Rate Investigation

Resolutions proposing an investigation of the freight rate structure of the United States, inspired by resentment because certain interterritorial freight rates between points in southern territory and points in official territory are on a higher level than rates within official territory, reflecting the greater unit cost of transportation in the South, were introduced in Congress on June 4 by Senator George and Representative Vinson, of Georgia. It is understood that the resolutions were the result, particularly, of agitation caused by a case now pending before the Interstate Commerce Commission involving rates on conton piece goods and similar products, in which the proposed report recommends rates from southern points somewhat higher than the rates available to competitive shippers in official territory. Senator George's resolution calls for an investigation by the committee on interstate commerce or a sub-committee thereof "with a view to determining (1) the relative investment costs and the value fixed by the Interstate Commerce Commission of the properties of Class I railroads, separating such values so as to show the same in the various freight territories of the country, (2) the cost of hauling freight, or the cost per car-mile of the movement of freight, as determined by the federal coordinator of transportation or from other sources, in each of the several freight territories, (3) the effect of making rates throughout the country and regulating, if necessary, the needs of the different carriers as was done in the New England divisions case, and (4) the methods pursued by freight associations and railroads in jointly prescribing rates." The committee is to report to the Senate as soon as practicable after the convening of the Seventy-Fourth Congress, with the results of its investigation together with its recommendations. The House resolution proposes an investigation by a select committee.

The preamble to the Senate resolution states that "it is alleged that the present rate system adopted by the rail carriers of the United States has resulted in higher rates per mile in some sections of the United States than in others notwithstanding efforts of Congress to make rail carriers a national system," and that "it is alleged that proposals are now before the Interstate Commerce Commission to make rates on textiles considerably higher from one section of the United States than for a similar distance from another section of the United States."

"Zephyr" to Open Dotsero Cutoff

The Chicago, Burlington & Quincy's "Zephyr," which on May 26 established a world record for long distance, high-speed operation, will be the first train over the Dotsero Cutoff through the Moffat tunnel when it is officially opened on June 16. The cutoff, which provides a new and materially shorter transcontinental route by way of Denver, Colo., will be opened with the driving of a silver spike at Orestod, Colo., after which the Zephyr will lead a procession of steam

trains over the cutoff. Following the ceremonies, the Zephyr will tour western coast cities before returning to Chicago for exhibition at A Century of Progress in July.

Milwaukee Speeds Up Chicago-Kansas City Service

The Chicago, Milwaukee, St. Paul & Pacific, on June 3, reduced the running time of the Southwest Limited between Chicago and Kansas City, Mo., 1 hr. 40 min., thus placing the train on a schedule of 12 hr. The train now leaves Chicago at 8 p. m. and arrives in Kansas city at 8 a. m. Returning, it will leave Kansas City at 7:45 p. m. and arrive in Chicago at 8 a. m. At the same time, the schedule of the Arrow between Chicago and Omaha, Neb., and Sioux City, Iowa, was reduced 1 hr. 40 min. to Omaha and 1 hr. 5 min. to Sioux City. The Arrow now leaves Chicago at 8 p. m. and arrives in Omaha at 7:35 a. m.

Southwest Shippers Board

The eleventh annual meeting of the Southwest Shippers' Advisory Board will be held at Oklahoma City, Okla., on June 14. J. H. Johnston, traffic manager of the Oklahoma Cottonseed Crushers' Association, will speak on the "Feasibility of Inland Waterway Transportation;" H. B. Cummins, chairman of the Texas-Louisiana Tariff Bureau, Dallas, Tex., will speak on "Inherent Vices of the Long and Short Haul Provision of Section 4 of the Interstate Commerce Act;" Paul A. Walker, chairman of the Corporation Commission of Oklahoma, will speak on "State and Federal Regulation of Common Carriers as Affected by Competitive Transportation Agencies;" and F. W. Davidson, grain broker, Topeka, Kan., will speak on "The Menace of Bureaucracy."

Western Roads Grant Drouth Rates

Emergency reductions on live stock and on feeds were placed in effect in the drouth stricken areas of the West on June 2 by western lines, following approval earlier in the day by the Interstate Commerce Commission. Authority for those receiving the reductions will be granted by county organizations which the drouth relief commission is establishing. Live stock bought by the government for immediate slaughter will be carried at 66 per cent of the normal rate. Live stock moved to other pastures will be handled at 85 per cent of the one-way tariff with the option of return to the point of origin within a year for an additional 15 per cent. The rate on grain feeds is 66 per cent of the usual charge, while that on hay has been lowered 50 per cent.

$12,940,056 Repaid to Credit Corporation

Of the $73,691,368 in loans made by The Railroad Credit Corporation, $12,940,056 has been repaid by borrowing carriers either through cash or credits, up to June 1, the corporation has reported to the Interstate Commerce Commission. This leaves $60,751,312 in outstanding loans as of that date. Upon the loans made to various railroads, $2,155,207 has been paid in interest.

The gross emergency revenues of participating carriers, which were pooled for lending purposes under the Marshalling and Distributing Plan, 1931, amounted to $75,423,722. Of that amount, $15,711,825 has been returned in cash or credits by The Railroad Credit Corporation, leaving a balance of $59,711,897 yet to be repaid.

Traffic Club of Chicago Charters Zephyr

The Traffic Club of Chicago on May 28 chartered the Zephyr, streamlined train of the Chicago, Burlington & Quincy, to afford its members and friends an opportunity to ride the train between Chicago and Aurora, Ill. To carry the 900 persons desiring to ride the new train, a companion steam train was operated so that the occupants of each train could be transferred at Aurora and thus give each group an opportunity to ride the Zephyr either going or returning. The trains made six round trips.

At a luncheon on the same day, Ralph Budd, president of the Chicago, Burlington & Quincy; Edward G. Budd, president of the Edward G. Budd Manufacturing Company, and H. L. Hamilton, chairman of the board of the Winton Engine Company, described the run from Denver to Chicago on May 26 and discussed the advantages of this type of train.

Status of P.R.R. Electrification and Equipment Program

The Pennsylvania's electrification and equipment-building program, which is being financed with Public Works Administration loans, has progressed to the point where special improvement payrolls are running well over three-quarters of a million dollars monthly and 8,500 furloughed railroad workers have been recalled to regular employment. Also, orders for materials and supplies already placed by the Pennsylvania in American markets total $25,000,000.

Of the 8,500 men re-employed, 6,000 are engaged on the completion of the electrification project between New York and Washington and the remainder are at work in the Pennsylvania shops engaged in the construction of 7,000 new freight cars. This new equipment is being built at the rate of 60 cars a day while construction work on the electrification program is approximately 25 per cent completed.

Nation Conference Proposes New Power Requirement for Trucks

A new performance requirement for motor trucks operating over the highways was proposed by the National Conference on Street and Highway Safety at its recent meeting in Washington. An amendment to the uniform vehicle code was adopted setting up as one of the proposed requirements for registration that "every motor vehicle to be operated outside of business and residence districts shall have motive power adequate to propel at a reasonable speed such vehicle and any load thereon or to be drawn thereby." The purpose is to remove a source of accidents caused by efforts of drivers to pass slow-moving trucks on hills.

A note appended suggests, as a method of determining whether the motive power is adequate, a requirement that the vehicle be powered so that it can ascend a grade of a specified per cent at a speed of not less than 20 miles per hour, which is considered reasonable on an ascending grade. The percentage gradient is to be inserted representing conditions within each particular state.

The conference went on record to the effect that it would not be practicable to include uniform gross weight limits in the code at this time because highways have not been generally built to uniform standards.

Tie Stocks on May 1 Show Slight Decrease

Reports filed with the Railway Tie Association by 14 companies which supply about 85 per cent of the crossties produced by commercial firms show that these companies had 7,182,452 crossties in stock on May 1. This was 209,554, or 2.8 per cent, less than these same companies had on hand on April 1 when tie stocks were greater than for any month since April, 1932. Of the ties available on May 1, 4,679,865, or 65 per cent, were 8 ft. long, and 2,502,687, or 35 per cent, were 8 ft. 6 in. long. U-ties for use untreated totaled 584,949, or 8 per cent of the total inventory, while oak ties for treatment numbered 4,416,977, or 62 per cent of the total. All other species for treatment totaled 2,180,526 ties, or 30 per cent of the inventory.

Five of the seven districts reporting showed increases in the number of ties in stock, while the other two showed decreases. The largest number of ties in stock was reported by the district comprising Kentucky, Tennessee, Alabama, Mississippi and Louisiana, east of the Mississippi river, the number being 2,913,769 crossties. The smallest number, 92,973 ties, was reported by the district comprising Michigan, Wisconsin and Minnesota.

Truckers' Complaint Against Southeastern Express Rates Dismissed

The Interstate Commerce Commission has dismissed a complaint filed by the American Highway Freight Association, Inc., against the Southeastern Express Company and the railroads, which had alleged that the arrangements and practices between the express company and the railroads, applicable in connection with less-than-carload interstate traffic transportation between points in the Southeast in express service over the rail lines, with storedoor pick-up and delivery, at rates no higher and generally less than the regularly established less-than-carload freight rates were unlawful. The commission found no evidence establishing discrimination as between shippers nor that defendants have charged a greater or less or different compensation than their lawfully published rates. "The record is convincing," the report says, "that the railroads, as now constituted, can not compete for traffic on an equal basis with express or truck service which offer superior forms of transportation. It is also obvious that any revenue which the railroad defendants

now receive from this added traffic, as a result of their contracts with the express company, is revenue over and above that which they would receive if they were not parties to these contracts. Complainant has failed to establish that such contracts constitute an unlawful device, or that section 1 of the Elkins act is violated."

Superintendents' Convention

The American Association of Railroad Superintendents will hold its annual convention at the Hotel Sherman, Chicago, on June 19-21. The program, which has been prepared to meet the needs of operating officers at the present time, is as follows:

Tuesday Morning

Address on behalf of Chicago railways, by A. N. Williams, president, Chicago & Western Indiana and Belt Railway of Chicago.

Address of President, V. Parvin, general superintendent, Ann Arbor.

Report of Secretary-Treasurer, F. O. Whiteman.

Address by R. H. Aishton, chairman, Association of Railway Executives.

Report of Committee No. 6 on Operating Aspects of the Demand for Faster Freight Service, J. W. Graves (superintendent, Erie), chairman.

Address on The Trend of Transportation, by H. G. Taylor, chairman, Western Association of Railway Executives.

Tuesday Afternoon

Report of Committee No. 4 on Prevention of Accidents in Terminals, A. M. Umshler (superintendent, terminals, Illinois Central), chairman.

Address on The Superintendent, the Key Man in Safety, by G. B. Vilas, general manager, Chicago & North Western.

Report of Committee No. 3 on Concentration of Facilities to Meet Present Day Conditions, J. E. Fairhead (superintendent, Delaware & Hudson), chairman.

Address on Freight Claims, An Operating Problem, by Joe Marshall, special representative, American Railway Association.

Wednesday Morning

Report of Committee No. 9 on Elimination of Main Track Derails, A. B. McNaughton (superintendent, Canadian National), chairman.

Address on How the Superintendent Can Further Public Relations, by J. M. Fitzgerald, vice-chairman, Eastern Committee on Public Relations.

Report of Committee No. 7 on Control of Work Train Service, H. C. Murphy (assistant to operating vice-president, Chicago, Burlington & Quincy), chairman.

Address on Fuel, the Railways' Largest Expense, by Robert Collett, fuel agent, St. Louis-San Francisco.

Address on The Diesel Engine as a Transportation Unit, by R. Tom Sawyer, American Locomotive Company.

Wednesday Afternoon

Report of Committee No. 5 on Meeting To day's Demands in L. C. L. Service, C. B. Pettigrew (division superintendent, St. Louis Southwestern), chairman.

Address on The Freight Car of the Future, by J. R. Turney, director, Section of Freight Service, Federal Co-ordinator of Transportation.

Report of Committee No. 2 on Budgeting Division Transportation Expenses, S. F. Mackay (superintendent, New York, New Haven & Hartford), chairman.

Round Table—for the informal consideration of transportation problems raised by members—F. O. Coleman, vice-president, presiding.

Thursday Morning

Report of Committee No. 8 on Adapting Local Supervision of Operating Activities to Present Day Conditions, W. A. Aiken, Jr. (superintendent transportation, Richmond, Fredericksburg & Potomac), chairman.

Closing business.

Following adjournment on Thursday noon, the members will make an inspection by special train of Chicago terminal operation and especially of the car retarder hump operation and the L. C. L. freight transfer station of the Chicago & North Western at Proviso, Ill.

President Postpones Recommendations as to Waterway Policy

In response to a Congressional resolution calling on him for a report on a comprehensive plan for the improvement and development of the rivers of the United States, President Roosevelt on June 4 submitted to Congress a preliminary study reported by the secretaries of the departments of the Interior, War, Agriculture, and Labor with a statement that further legislative action on the subject at this session of Congress seems to be unnecessary. He said he expected to forward to Congress before its final adjournment a broader outline of national policy but suggested that Congress regard the message and the accompanying documents as merely a preliminary study and allow him, before the assembling of the next Congress, to complete the studies and outline to the next Congress a comprehensive plan to be pursued over a long period of years. He pointed out that the time for the preparation of the reports was extremely limited and that the subject is one of enormous magnitude. He said the reports of the technical sub-committees, covering various areas, are of definite value, but that before any work is done it is obvious that a competent co-ordinating body must go over all of the reports, as well as reports on other projects, and produce a comprehensive plan.

Some of the reports transmitted with the message presuppose the construction of the St. Lawrence seaway, in spite of the failure of the Senate to ratify the treaty with Canada. President Roosevelt has by no means given up the idea that the waterway will eventually be built, and it is understood that he plans to resume negotiations with Canada on the subject this summer.

Removal of Burdensome State Requirements Within I.C.C. Power

The Supreme Court of the United States, in an opinion by Chief Justice Hughes, on June 4 affirmed the decision of the district court sustaining the order of the Interstate Commerce Commission approving a lease by the Kansas City Southern of the properties of the Texarkana & Fort Smith, including a provision in the lease permitting the lessee to abandon, or to remove from the state of Texas, the general offices, shops, etc., of the lessor, in spite of the requirements of Texas law. The commission concluded that the expenditure of $81,000 a year, which would be unnecessary under the plan for unified operation under the lease, would constitute an undue burden on interstate commerce.

The court, in its decision, said that the transportation act of 1920 introduced into the federal legislation a new railroad policy, that a primary aim of that policy was to secure the avoidance of waste, and that "the fact that burdensome expenditures may be required by state regulations is not a barrier to their removal by dominant federal authority in the protection of interstate commerce.

"Even explicit charter provisions must yield to the paramount regulatory authority of the Congress," the opinion continued. "In the present case, the findings of the commission, setting forth undisputed facts, leave no doubt that the provision of the lease permitting the abandonment, or removal from the state, of general offices and shops of the lessor has direct relation to economy and efficiency in interstate operations and to the achievement of the purpose which Congress had in view in its grant of authority. There is no interference with the supervision of the state over the lessor in matters essentially of state concern, as distinguished from the operations which in their effect upon interstate commerce are of national concern."

Railroad Labor Legislation

President Roosevelt's insistence that Congress remain in session for another week or two in order to act on several pending administration bills has afforded a little more possible time for the consideration of the bills advocated by the Railway Labor Executives' Association and strenuous efforts are being made by its committee to obtain the passage of the Wagner-Hatfield railroad pension bill, S. 3231, which has been reported by the Senate committee and on which the House committee on interstate and foreign commerce has agreed to give a one-day hearing on June 8. The situation is somewhat more confused as to the bill to amend the railway labor act, S.3266 and H.R.9689, which has been reported by the Senate committee but has not yet been acted upon by the House committee, which referred it, after hearing, to a sub-committee headed by Representative Crosser. While the Railway Labor Executives' Association has been pushing the bill, some of the organizations are not interested unless they can get rid of several provisions inserted by Co-ordinator Eastman and approved by the Senate committee.

"Labor," the official publication of the railroad labor organizations, reports that a committee authorized to speak for all the organizations appeared before the sub-committee after the close of the hearings and "made it crystal clear that there is no division in the ranks of railroad labor, and that every one of the 21 organizations is demanding the prompt passage of the Eastman bill with a few amendments on which all have agreed, and which are designed to clarify certain provisions." In a minority report against the bill signed by Senator Hastings of the Senate committee there was appended a copy of a letter addressed by A. F. Whitney, president of the Brotherhood of Railroad Trainmen, to all the lodges, grievance committees and legislative boards of the brotherhood urging that members wire or write their Senators and Congressmen vigorously protesting against the adoption of four provisions written into the bill by Mr. Eastman which he said, "if adopted, will seriously interfere with, if not destroy, fundamental rights which labor has heretofore enjoyed."

"In Section 2, under the caption 'General Purposes'," he said, "the federal co-ordinator has recommended an amendment which, if enacted, will probably prohibit strikes and deprive railway workers of what little democracy and freedom of action they now enjoy, and in lieu of suggestions made by the standard railway labor organizations the Senate committee has recommended amendments proposed by the Co-ordinator, known as paragraphs 'fourth' and 'fifth' of section 2 which would destroy existing percentage or closed shop agreements and prohibit such agreements in

future, and in paragraph 'ninth' of the same section 2 the co-ordinator has proposed an amendment which would have the effect of placing jurisdictional questions in the hands of the federal government for determination which the organizations heretofore have been free to adjust among themselves without interference by the government. There can be no question but that the railway labor act is in need of amendment to correct its admitted weaknesses, but the railway employees of the United States would be far better off to have the law continue as it is than to be shackled by amendments such as above indicated."

The sub-committee on Wednesday completed a revision of the bill to include the amendments urged by the labor organizations, and it was introduced as a new bill. The full committee was expected to consider it later.

Senator Davis, of Pennsylvania, made a brief speech in the Senate on June 4 on the pension bill, saying it had been approved by the outstanding representatives of the railway brotherhoods and "some of the leading carriers," which he did not endeavor to identify, and urging its passage. Senator Hatfield also inquired of the majority leader, Senator Robinson, of Arkansas, whether the Senate might not at some time in the immediate future take up the bill and dispose of it, saying that he understood there was a very favorable attitude toward the bill in the House. Senator Robinson said he was unable to give assurance regarding the matter, but that he was hopeful that the bill might be taken up before the end of the session.

Foresees Much Line Abandonment in Canada

The trustees of the Canadian National contemplate abandonment of many lines of an unproductive nature, Hon. Charles P. Fullerton, chairman of the trustees, told the House of Commons railway committee in Ottawa last week. He did not specify which lines would be abandoned, but said the trustees would shortly make application to the Board of Railway Commissioners for authority to proceed with that policy.

Line abandonments would take place only where there was duplication of services with the Canadian Pacific, Mr. Fullerton said. Residents in the areas affected would be given notice of intention and opportunity to appear before the Board of Railway Commissioners.

The committee asked Judge Fullerton's opinion of the view recently expressed by President Beatty of the Canadian Pacific, to the effect that economies to be obtained by co-operation between the two railways would not be very great.

Mr. Beatty, said Judge Fullerton, is a strong advocate of consolidation of the railways, and is properly looking after his own interests. He had not thought fit to make any public reply to Mr. Beatty's observations. However, he would be prepared next Wednesday to make a statement to the committee, when it met again, covering the whole matter of co-operation. Judge Fullerton was asked to include in that statement his views with regard to writing down the capital of the C.N.R., as recommended by the company's auditors.

The committee has approved a bill providing for payment of $48,840,298, representing the estimated deficits of the system for the current year. The bill also provided for an issue of notes amounting to $16,387,835 to take care of capital expenditures and for a refunding issue amounting to $37,570,583. The estimated revenues of the Canadian National during the current year are $165,000,000 said Judge Fullerton.

S. W. Fairweather, economist of the C.N.R., explained the system whereby economies effected by cooperation were split 50-50 by each of the companies. The pooling agreement provided that notwithstanding the tickets sold by any of the companies on the pool trains, the proceeds were divided between them on the ratio of the business enjoyed when the companies were on a competing basis.

Equipment and Supplies

FREIGHT CARS

E. I. DU PONT DE NEMOURS & Co. has ordered two tank cars from the American Car & Foundry Company.

THE SEABOARD AIR LINE, reported in the *Railway Age* of April 21 as inquiring for 10 steel underframes, has ordered this equipment from the American Car & Foundry Company.

PASSENGER CARS

THE NATIONAL RAILWAYS OF COLOMBIA contemplates buying 20 coaches, 2 dining cars and 4 baggage and mail cars. Roberto J. Herrera is director, Bogota, Colombia.

IRON AND STEEL

THE DELAWARE, LACKAWANNA & WESTERN has placed an order for about 1,500 tons of tie plates.

THE ERIE has ordered from the American Bridge Company 250 tons of steel for a bridge at Hamburg, N. Y.

THE ERIE has ordered from the Jones & Laughlin Steel Corporation 730 tons of steel for a bridge at Alleghany, N. Y.

NEW YORK, CHICAGO AND ST. LOUIS has ordered 300 tons of structural steel for a bridge at Willoughby, Ohio, from the McClintic-Marshall Corporation.

LONG ISLAND.—A contract has been given to the McClintic-Marshall Corporation for furnishing about 450 tons of steel for grade crossing elimination work at Central avenue, Glendale, Long Island, in Queens county, N. Y., on the Montauk division, (Public Service case No. 2977). Foley Bros., Inc., New York, has the contract for the construction work.

Supply Trade

The Tanner-Willard Company, St. Louis, Mo., has been appointed railroad sales agent for **The Cleveland Tractor Company** to handle Cletrac crawler tractors and equipment in the Southwest, supplementing the Austin-Western Road Machinery Company, industrial distributors for The Cleveland Tractor Company in this territory.

A. W. Spaulding, chief engineer of the **Ingot Iron Railway Products Company,** Middletown, Ohio, has been elected vice-president. **E. T. Cross,** district manager at Atlanta, Ga., has been promoted to general manager of sales at Middletown. **J. L. Young,** district manager at Chicago, has been appointed general manager of the **Drainage Engineering Company,** a subsidiary of the Ingot Iron Railway Products Company, at Middletown. **W. P. Greenawalt** has been appointed district manager of the Ingot Iron Railway Products Company at Chicago.

E. S. McClelland, director of personnel of the **Westinghouse & Manufacturing Company,** has retired after a continuous service of 53 years with Westinghouse interests. With seniority outranking all other veterans of Westinghouse, Mr. McClelland at the age of 17 started with the company in 1881 as a helper in the foundry of the Westinghouse Machine Company. He subsequently became connected with the Westinghouse Electric & Manufacturing Company and was advanced through various positions until 1920, since which time he has served as director of personnel.

Samuel E. Hackett, who has been elected president of the **Jones & Laughlin Steel Corporation,** with headquarters at Pittsburgh, Pa., left the service of the Joseph T. Ryerson Company in 1916, to become district sales manager and manager

Samuel E. Hackett

of the Chicago warehouse of the Jones & Laughlin Steel Corporation. In 1918, he was transferred to Pittsburgh, Pa., and appointed general manager of sales. Since January, 1923, Mr. Hackett has served as vice-president in charge of sales and now becomes president of the same company.

John E. Long has been appointed mechanical engineer of the **Franklin Railway Supply Company, Inc.**, with headquarters at the Chicago office. Mr. Long was born in 1899 and was graduated from Purdue University in 1923. Prior to his graduation he was employed in various capacities by the Pennsylvania, the Baltimore & Ohio and the Atchison, Topeka & Santa Fe. In 1923, he went with the

John E. Long

Lima Locomotive Works, Incorporated, remaining with that company for 11 years until appointment as mechanical engineer of Franklin Railway Supply Company. While with Lima, Mr. Long was in the calculating, service, engineering and sales departments and had an extensive experience in special design work and in locomotive testing. He also engaged in the study of operating conditions on various roads with a view to applying the most efficient designs of locomotives to the specific operations.

Arthur S. Goble, for many years district manager at St. Louis, Mo., of the **Baldwin Locomotive Works,** has again joined this company's sales staff as a member of the Philadelphia, Pa., district organization, having on June 1 taken over

Arthur S. Goble

the territory formerly covered by Charles E. Hale, deceased. **Henry Blanchard,** formerly of the Chicago district office is now located in the Eddystone, Pa., office as a sales correspondent in connection with both foreign and domestic inquiries. Mr. Goble in 1904, completed a course in chemical engineering at the University of Illinois, and the same year entered the service of the Chicago & North Western as assistant to the chemist and engineer of tests. In 1911, he left that road to enter the sales departments of the Baldwin Locomotive Works and the Standard Steel Works Company, in the New York office, later serving in the Chicago office. During the last 14 years of his service with these companies, he was district manager of the St. Louis, Mo., office in charge of sales in the southwestern section of the United States. He left that service in August, 1932, and subsequently was vice-president of the Hanna Stoker Company with duties including jurisdiction over the sales department.

The Railway Car Building Industry has selected the following members as its code authority: Chairman, **John F. MacEnulty,** general sales manager of the Pressed Steel Car Company, New York; **C. A. Liddle,** president of the Pullman Car & Manufacturing Corporation, Chicago; **Charles J. Hardy,** president of the American Car & Foundry Company, New York; **Lester N. Selig,** president of the General American Transportation Corporation, Chicago; **R. K. Weber,** president of the Mt. Vernon Car Manufacturing Company, Mt. Vernon, Ill.; **Frank L. Fay,** president of the Greenville Steel Car Company, Greenville, Pa.; and **F. E. Symons,** president of the Ralston Steel Car Company, Columbus, Ohio.

Steel Code Modified and Continued in Effect

Effective on June 11 a number of modifications in the N.R.A. code for the steel industry will become effective as a result of an executive order signed by President Roosevelt on May 30 approving the changes. The code was originally approved for a trial period of 90 days and then was extended for an additional trial period to May 31. The termination clause has now been modified to provide simply that the code may be terminated at any time by action of the President or by a vote of 75 per cent of the members of the code. In connection with the approval the President made two statements:

"1. Conditions of economic emergency make necessary the retention in modified form of the multiple basing point system adopted in the original code and effective in the industry for many years. But revisions made in this Code, increasing substantially the number of basing points, and modifications in practice under the Code, while alleviating some of the inequities in the existing system, illustrate the desirability of working toward the end of having prices quoted on the basis of areas of production and the eventual establishment of basing points coincident with all such areas, as well as the elimination of artificial transportation charges in price quotations. Therefore, I have directed the Federal Trade Commission and the National Recovery Administration to study further and jointly the operation of the basing point system and its effect on prices to consumers, and any effects of the existing system in either permitting or encouraging price fixing, or providing unfair competitive advantages for producers, or disadvantages for consumers not based on natural causes. I have requested that the results of this study be reported to me within six months, together with any recommendations for revisions of the Code, in accordance with the conclusions reached.

"2. In order to insure the free exercise of the rights of employees under the provisions of Section 7 of this Act and of Article IV of this Code, I will undertake promptly to provide, as the occasion may demand, for the election by employees in each industrial unit of representatives of their own choosing for the purpose of collective bargaining and other mutual aid and protection, under the supervision of an appropriate governmental agency and in accordance with suitable rules and regulations."

The previous power of the code authority to set aside an "unfair" price filing and to fix a "fair base price" is annulled by striking out Section 5 of Schedule E of the Code approved August 19, 1933. There is no minimum price or "cost recovery" provision now left in the code.

The basing point has been revised by adding new basing points to take care of outstanding complaints (such as Worcester, Mass., Duluth, Minn., Corpus Christi, Tex., Stockton, Cal.). Criticisms of basing point prices are also met in part by providing for modification of transportation charges and price filing requirements.

All-rail transportation charges, which are included in delivered prices quoted under the code, may be reduced when delivery is by other means (such as water or motor transportation) at rates approved by the code authority as "equitable and necessary in order that competitive opportunity to producers and consumers shall be maintained," subject to review of such action by the administrator. By a further revision of the code sales below a published base price *or delivered price* may be authorized by the code authority—also subject to review by the administrator. Under these revised provisions various complaints of producers and consumers are already in process of adjustment.

The price filing provision has been revised to permit any producer to meet a lower price quoted by a competitor without waiting ten days. (Under the code also any producer can quote as *his* price the lowest base price filed by any competitor at a basing point where he himself does not file.)

The 8-hour day is now established unconditionally for the entire industry by an amendment of Article IV. The average 40 hour week and maximum 6 day week is retained.

Three new definitions of unfair practice are added to Schedule H:

1. Orders cannot be sought by promising to file new prices subsequently—thereby engaging in secret price-cutting.

2. Products not properly classified as "scrap" cannot be sold as "scrap."

3. The use of coercion or coercive means to induce a producer to withdraw or to change his base price, is forbidden.

A new provision in Schedule E, Sec. 8 permits making a contract calling for de-

livery beyond the end of the next calendar quarter year if products are required for an identified structure, railroad cars and locomotives, or a definite project of federal, state, county or municipal government. (The limitation against long term contracts is written to prevent speculation and the exception is made in public and private contracts which cannot be used for speculative buying.)

Under an amendment of Schedule E, Sec. 3, prices fixed in contracts to be fulfilled in the next succeeding quarter may be reduced if lower prices are subsequently filed—thus allowing producers to give their contractual customers the benefit of general declining prices or lower prices made by competitors.

OBITUARY

George M. Crownover, general superintendent of the Exweld Railway Service Company, Chicago, and superintendent of motive power of the Chicago Great Western at Oelwein, Iowa, until 1913, died in Chicago on June 5 following a heart attack.

William E. Sharp, president of the Grip Nut Company, Chicago, and long prominent in railway supply circles, died in that city on June 4, following a short illness. He was born in Warren, Huntington county, Ind., on June 25, 1870, and entered railway service as an apprentice at the Huntington, Ind., shops of the Erie in 1889. In 1893 he was appointed general foreman of the locomotive and car department of the Erie at Chicago, which position he held until 1898, when he resigned to become engineer of car construction of the Armour Car Lines, Chicago. In 1902 he was appointed acting superintendent of these lines and later became general superintendent in charge of design, building and maintenance of all this company's cars. He resigned from this company in 1911 and in the following year was elected vice-president of the Grip Nut Company. He held this position until 1917, when he was elected president, the position he was holding at the time of his death. Mr. Sharp has taken a keen interest in railway and railway supply association work. He was one of the organizers of the Car Foremen's Association of Chicago, which he served in several offices, including that of president. He is a past president of the Western Railway Club. At the time of his death he was president of the Railway Car Appliances Association, which was recently organized to administer the N. R. A. code of the railway car appliances industries. He was also a member of the Executive committee and the Governing board of the Railway Business Association, of which at one time he was a vice-president.

William E. Sharp

Construction

CHICAGO & EASTERN ILLINOIS—CHICAGO HEIGHTS TERMINAL TRANSFER.—The Illinois Division of Highways has awarded a contract to the T. H. Reynolds Company, Chicago Heights, Ill., for the construction of a subway structure to carry Route 22 under the tracks of these companies at Chicago Heights, at a cost of about $51,000. Funds for this project are being furnished by the federal government.

CHICAGO & WESTERN INDIANA—NEW YORK, CHICAGO & ST. LOUIS.—In a recent ruling the Illinois Supreme Court upheld a decision of the circuit court of Cook county affirming a ruling of the Illinois Commerce Commission to the effect that the City of Chicago must assume half the cost of constructing a subway to carry Ninety-Fifth street under the tracks of the C. & W. I. and the Nickel Plate. In a petition before the commission, the city had sought to impose the total cost of approximately $300,000 on the two railroads.

LONG ISLAND.—This road has given a contract to Foley Brothers, Inc., New York, for the elimination of the Central avenue grade crossing at Glendale, Long Island. The work involves the use of about 450 tons of steel.

NEW YORK CENTRAL.—This company has been ordered by the New York Public Service Commission to contract at once for the reconstruction of its bridge over Central avenue in Albany, N. Y.

NEW YORK CENTRAL.—The Lock street and Gooding street crossings of this road in Lockport, Niagara county, N. Y., have been designated for elimination by the New York Public Service Commission. The Lock street crossing is to be eliminated by closing the street across the tracks of the railroad and the adjacent siding on the north and by providing a pedestrian subway under all tracks of the railroad at an estimated cost of $24,100. The Gooding street crossing is to be eliminated by placing the grade of the highway below the grade of the railroad about 43 feet west of the present site at an estimated cost of $143,500.

ST. LOUIS-SAN FRANCISCO.—This company has made plans for the construction of a one-story shop addition, 40 ft. by 100 ft., at Yale, Tenn.

Financial

CHICAGO & EASTERN ILLINOIS.—*R. F. C. Report.*—A suggestion for a consolidation or co-ordinated operation of this property with the New York Central and the Cleveland, Cincinnati, Chicago, & St. Louis is made in a report by the railroad division of the Reconstruction Finance Corporation to its board of directors on an examination of the property, its past history, and the causes which led to its reorganization. The Interstate Commerce Commission's consolidation plan allocated the C. & E. I. to the Chesapeake & Ohio-Nickel Plate system and the C. & O., through the Virginia Transportation Corporation, has acquired more than 42 per cent of the capital stock. The report includes a discussion of five outstanding causes for the failure of the company to carry through to net a sufficient proportion of gross earnings to meet fixed charges: overcapitalization; excessive investment in plant; deficiency of return on freight traffic; excessive charges to maintenance of equipment, until a comparatively recent period; and payment of large amounts for equipment rentals.

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—*Maturity Extension Effective.*—This company has declared operative its plan whereby the maturity dates of Milwaukee & Northern first mortgage bonds and consolidated mortgage bonds are to be extended for five years from June 1—holders of more than 93 per cent of the former issue and 85 per cent of the latter having assented to the plan.

CHICAGO, NORTH SHORE & MILWAUKEE.—*P. W. A. Loan.*—The receivers have applied to the Interstate Commerce Commission for authority for the expenditure of $253,577 for which they have applied to the Public Works Administration for a loan for new rails and fastenings, equipment repairs. etc.

CHRISTIE & EASTERN.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon 5 miles of its line, from Peason, La., to Red River & Gulf Junction.

DELAWARE, LACKAWANNA & WESTERN.—*Abandonment.*—The Interstate Commerce Commission has authorized this company and the Sussex Railroad to abandon a branch line of the latter company extending from Branchville Junction, N. J. to Franklin, 9.2 miles.

DENVER & RIO GRANDE WESTERN.—*Trackage.*—This company has applied to the Interstate Commerce Commission for authority to operate over tracks of the Chicago, Burlington & Quincy and the Colorado & Southern at Denver, Colo.

DENVER & RIO GRANDE WESTERN.—*Bondholders Assenting to Interest Deferment.*—This company has announced that holders of more than 50 per cent of its general mortgage bonds have assented to the plan of deferring interest on the issue due February and August this year and February, 1935.

ILLINOIS CENTRAL.—*Notes.*—The Interstate Commerce Commission has authorized this company to issue $12,500,000 of 3-year 6 per cent notes, under its plan whereby holders of $20,000,000 of 4½ per cent maturing notes are asked to accept 62.5 per cent of the principal in the new notes and 37.5 per cent in cash.

ST. LOUIS-SAN FRANCISCO.—*Trackage*—The trustees have applied to the Interstate Commerce Commission for authority to operate over the tracks and station facilities of the Illinois Central at Memphis, Tenn.

ST. LOUIS-SAN FRANCISCO.—*Abandonment.*—The Interstate Commerce Commission has authorized this company and its trustees to abandon a branch line extending from Weir Junction, Kans., to Weir City, 2.7 miles. The commission has also authorized the abandonment of a branch line from Vanduser, Mo., to Bloomfield, 17.3 miles.

SOUTHERN PACIFIC.—*Abandonment.*—The Morgan's Louisiana & Texas and the Texas & New Orleans applied jointly to the Interstate Commerce Commission for permission to abandon a portion of a branch line extending from Lenora, La., to Sunrise, 35.9 miles, together with connecting and secondary tracks totaling 7.1 miles. The Commission authorized the abandonment of the segment between Atchafalaya and Sunrise, but deferred action on the segment between Lenora and Atchafalaya.

YAZOO & MISSISSIPPI VALLEY.—*Abondonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon a line from Mattson, Miss., to Lombardy, 16.34 miles.

Average Prices of Stocks and of Bonds

	June 5	Last week	Last year
Average price of 20 representative railway stocks.	42.34	41.50	39.93
Average price of 20 representative railway bonds.	78.04	78.25	68.52

Dividends Declared

Beech Creek.—50c, quarterly, payable July 2 to holders of record June 15.

Cuyuga & Susquehanna.—$1.20, semi-annually, payable July 2 to holders of record June 20.

Delaware.—$1.00, semi-annually, payable July 2 to holders of record June 15.

New York & Harlem.—$2.50, semi-annually; Preferred, $2.50, semi-annually, both payable July 2 to holders of record June 15.

New York, Lackawanna & Western.—5 Per Cent Guaranteed, $1.25, quarterly, payable July 2 to holders of record June 15.

Northern Central.—$2.00, semi-annually, payable July 15 to holders of record June 30.

Philadelphia, Baltimore & Washington.—$1.50, semi-annually, payable June 21 to holders of record June 16.

Philadelphia & Trenton.—$2.50, quarterly, payable July 10 to holders of record June 30.

Pittsburg, McKeesport & Youghiogheny.—$1.50, semi-annually, payable July 2 to holders of record June 15.

Pittsfield & North Adams.—$2.50, semi-annually, payable July 2 to holders of record June 30.

Rensselaer & Saratoga.—$4.00, semi-annually, payable July 2 to holders of record June 15.

Sussex.—50c, semi-annually, payable July 2 to holders of record June 15.

Valley R. R. of New York.—$2.50, semi-annually, payable July 2 to holders of record June 15.

Western New York & Pennsylvania.—$1.50, semi-annually; 5 Per Cent Preferred, $1.25, quarterly, both payable July 2 to holders of record June 30.

Atchison, Topeka & Santa Fe.—Preferred, $2.50, semi-annually, payable August 1 to holders of record June 30.

Railway Officers

EXECUTIVE

Effective June 1 the headquarters of **F. J. Wall,** vice-president in charge of traffic of the New York, New Haven & Hartford and its subsidiary companies, has been transferred from New Haven, Conn., to Room 484, South Station, Boston, Mass.

William White, assistant general manager of the Western district of the Erie, with headquarters at Youngstown, Ohio, has been appointed assistant to vice-president (operation) of the system, with headquarters at Cleveland, Ohio. In this position Mr. White has assumed the duties formerly discharged by the late **John M. Condon,** assistant vice-president (operation), and the latter position has been abolished. Mr. White has been connected with the Erie for more than 20 years. He was born in February 3, 1897, and entered railway service with the Erie at the age of 16 years as a clerk in the office of the auditor of freight accounts at New York. From 1913 to 1916 Mr. White served as a stenographer and clerk in the office of the superintendent of the New York, Susquehanna & Western (a subsidiary of the Erie), at Jersey City, N. J., and in March of the latter year he was transferred to the office of the vice-president of the Erie at New York, where he was appointed secretary to the vice-president a short time later. During federal control of the railroads, Mr. White acted as secretary to the

William White

assistant director of the Eastern region and as secretary of the New York district conference committee. In March, 1920, he returned to the Erie as office manager, operating department, Ohio region, at Youngstown, Ohio, being promoted to trainmaster at Marion, Ohio, in 1923. In the following year he was transferred to Huntington, Ind., and in January, 1927, he was promoted to terminal superintendent of the Mahoning division, being made superintendent of that division in the following month. Mr. White was further advanced to assistant general manager of the Western district on September 16, 1929, which position he held until his recent appointment.

FINANCIAL, LEGAL AND ACCOUNTING

J. M. Salter, assistant treasurer of the Kansas City Southern, has been promoted to treasurer, with headquarters as before at Kansas City, Mo., succeeding **I. C. McGee,** deceased. **H. H. Hoar,** chief

J. M. Salter

clerk in the office of the treasurer at Kansas City, has been promoted to assistant treasurer to succeed Mr. Salter. Mr. Salter was born on September 15, 1883, at Lancaster, Ky., and entered the service of the Texarkana & Ft. Smith (a subsidiary of the K. C. S.) on November 17, 1910, as a general clerk in the auditor's office at Texarkana, Tex. In December of the following year Mr. Salter was appointed payroll clerk, and in January, 1915, he was made general bookkeeper, being elected treasurer in October, 1916. Two years later, at the inception of federal control of the railroads, Mr. Salter was appointed chief clerk to the federal treasurer, with headquarters at Kansas City. Following the termination of federal control on March 1, 1920, Mr. Salter returned to Texarkana as treasurer of the T. & F. S., which position he held until October, 1922, when he was appointed assistant treasurer of the Kansas City Southern, with headquarters at Kansas City. He was holding the latter position at the time of his recent promotion to treasurer.

Joseph W. Jamison, who has been appointed general counsel for the trustees of the St. Louis-San Francisco, as noted in the *Railway Age* of May 26, was born on January 28, 1868, near Bolivar, Mo., and studied law during his spare time while teaching school. He was admitted to the bar in Missouri in 1891 and two years later he was appointed registrar in the United States land office at Boonville, later becoming city counselor at that point. In 1903, Mr. Jamison became engaged in the general practice of law at St. Louis, Mo., and after 10 years he was appointed general attorney for Missouri for the Missouri-Kansas-Texas. He resigned this position in 1923 to return to the private practice of law, and in October of the same year he was made general

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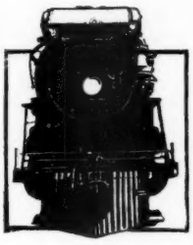
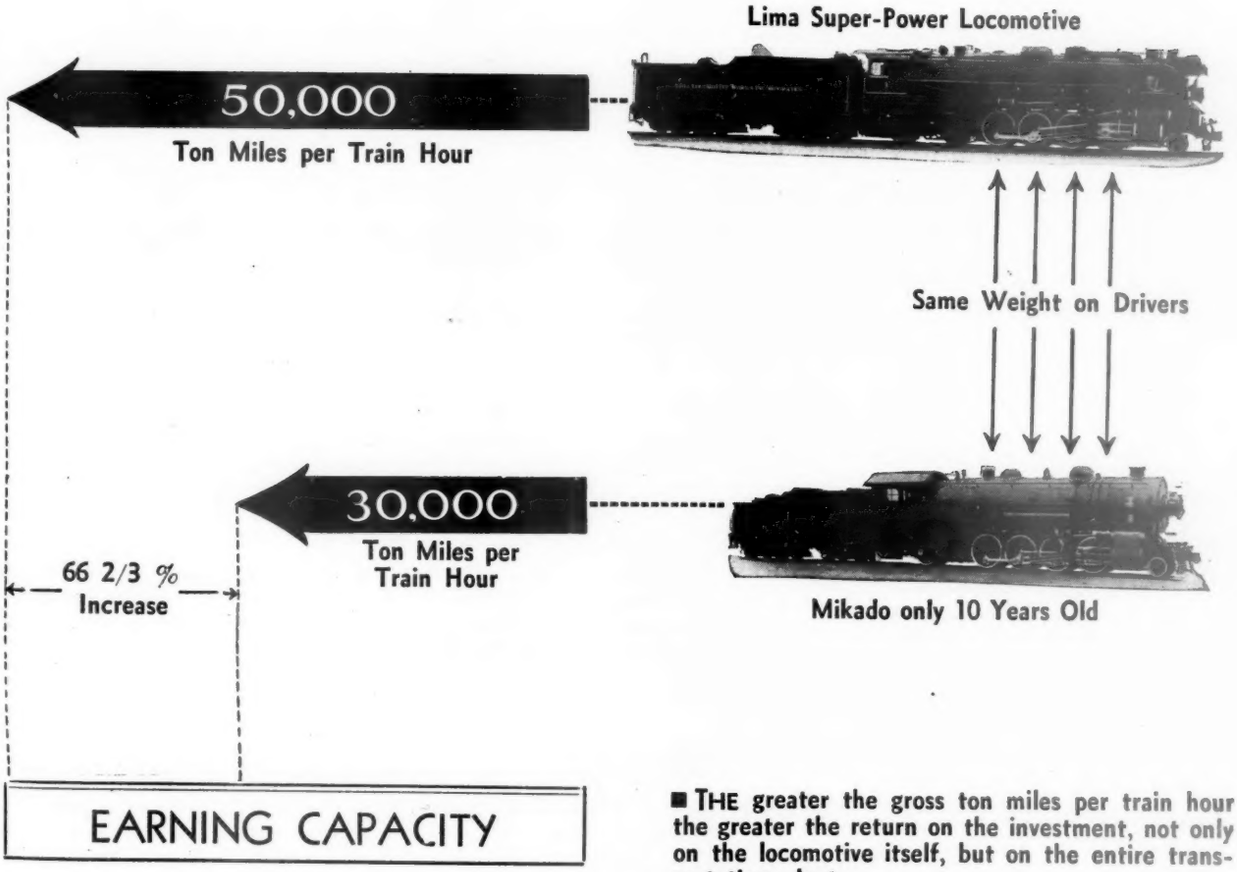


Measure Locomotive Performance With This Yard Stick



■ THE greater the gross ton miles per train hour the greater the return on the investment, not only on the locomotive itself, but on the entire transportation plant.

LIMA LOCOMOTIVE WORKS

Incorporated

LIMA OHIO

LIMA LOCOMOTIVE WORKS INCORPORATED

counsel for the Southwestern Bell Telephone Company, remaining in this capacity until 1933 when he retired. Mr. Jamison has been active in legal and other organizations for many years. In 1909 he was appointed a member of the St. Louis board of election commissioners and

Joseph W. Jamison

served in this capacity for four years. In 1921 he became attorney for the St. Louis Bar Association, the St. Louis Chamber of Commerce and other organizations, in which capacity he drafted numerous bills for introduction in the state legislature. Mr. Jamison has also been active in the affairs of the American Bar Association and the Missouri Bar Association, having served as president of the latter in 1930.

OPERATING

H. D. Barber, superintendent of the Buffalo and Rochester divisions of the Erie, with headquarters at Buffalo, N. Y., has been promoted to assistant general manager of the Western district, with headquarters at Youngstown, Ohio, to succeed **William White,** whose appointment as assistant to vice-president is noted elsewhere in these columns. **W. M. Sporleder,** assistant superintendent of the Marion division, at Chicago, has been promoted to superintendent of the same division, with headquarters at Huntington, Ind., succeeding **F. J. Tamplin,** who has been transferred to the Kent division, at Marion, Ohio, to replace **D. J. Maley,** who has been transferred to the Buffalo and Rochester divisions to succeed Mr. Barber. **G. F. Raymus,** trainmaster at New York, has been promoted to assistant superintendent at Chicago to replace Mr. Sporleder, and has been succeeded at New York by **A. L. Rogers.**

C. C. Holtorf, assistant superintendent of the Alliance-Sterling divisions of the Chicago, Burlington & Quincy, with headquarters at Sterling, Colo., has been promoted to superintendent of the same divisions, with headquarters at Alliance, Neb., succeeding **W. F. Giles,** who has been transferred to the St. Joseph division at St. Joseph, Mo., to replace **Walter T. Sadler,** deceased. **J. S. Miller,** assistant superintendent at Denver, Colo., has been transferred to Sterling to replace Mr. Holtorf, and has been succeeded at Denver by **W. P. Wilson,** assistant superintendent of the Casper-Sheridan divisions, with headquarters at Sheridan, Wyo. **D. J. Nelson,** assistant superintendent at Casper, Wyo., has been transferred to Sheridan to replace Mr. Wilson, and the position of assistant superintendent at Casper has been abolished. **H. E. Hinshaw,** acting assistant superintendent of the McCook division, at McCook, Neb., has been appointed trainmaster of the same division, and the position of acting assistant superintendent has been abolished. **C. L. Gray,** acting trainmaster of the McCook division, has been appointed trainmaster of the Casper division, at Casper.

TRAFFIC

Recent changes and promotions in the freight traffic department of the New York, New Haven & Hartford and its subsidiaries, the New York, Westchester & Boston and the New England Steamship Company, have left the organization set-up of that department as follows: **F. P. Kinney** will continue as freight traffic manager, with headquarters at New Haven, Conn. **A. A. Drummond** has been appointed assistant freight traffic manager at the same point; **J. A. Beahan,** formerly general freight agent, has been appointed assistant freight traffic manager in charge of solicitation and service, with headquarters as before at Boston, Mass.; **H. L. Sheffield** has been appointed assistant freight traffic manager in charge of rates and divisions, with headquarters as before at New Haven; **H. A. Poveleite,** assistant to the general traffic manager, has been appointed assistant freight traffic manager in charge of commerce work, with headquarters as before at New Haven; **J. Douglas,** assistant freight traffic manager, with headquarters at New Haven, has been appointed general freight agent, with headquarters in Boston; **G. H. Slack** has been appointed assistant general freight agent at Boston; **J. E. Redman** will continue as general freight agent with headquarters in New York; and **R. E. Burns** has been appointed assistant general freight agent at New York.

OBITUARY

George P. Bagby, Western Maryland Chairman, Dies

George P. Bagby, chairman of the board and president of the Western Maryland, with headquarters in Baltimore, Md., died in the Union Memorial hospital in that city on June 3 after a short illness. Mr. Bagby was born in King and Queen County, Va., on August 19, 1879. He was educated at Richmond College, the University of Virginia and the University of Maryland and entered railway service in January, 1917, as general attorney for the Western Maryland. He was appointed general solicitor for that road in March, 1920, and in January, 1926, he was further promoted to the position of vice-president and general solicitor. In October, 1930, Mr. Bagby was elected to the presidency of the Western Maryland to succeed M. C. Byers and later he was elected also to the position of chairman of the board.

During the period prior to his railway service when he was engaged in the general practice of law Mr. Bagby brought

George P. Bagby

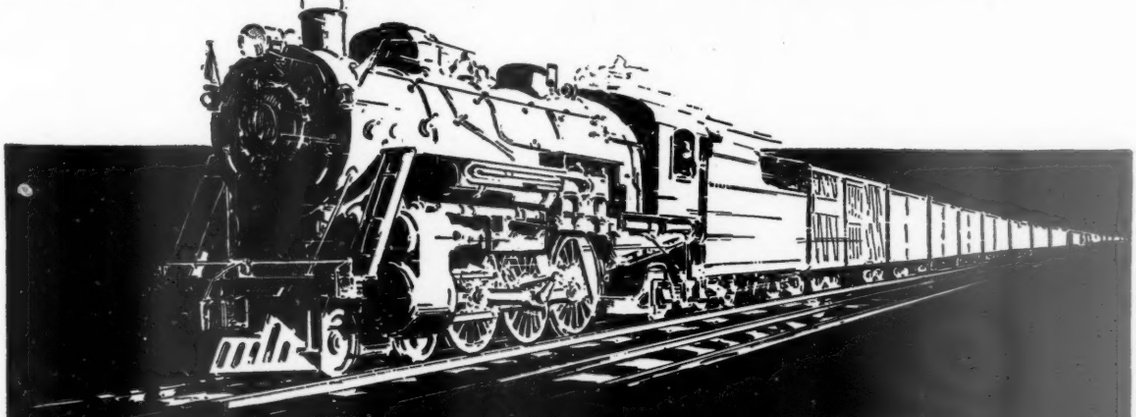
out the first edition of the Maryland Annotated Code. This was published first in 1911 and contained all laws and statutes of the State. He was editor for a number of years and brought out several later editions.

Montgomery Smith, who retired as assistant general purchasing agent of the Pennsylvania in August, 1929, died in Philadelphia on June 5 after a short illness. Mr. Smith was 71 years of age. He entered the service of the Pennsylvania in 1879 and served in various positions in the purchasing department of that road until 1924, when he was appointed purchasing agent. He was later promoted to the position of assistant to the general purchasing agent, and in 1928 he became assistant general purchasing agent, in which capacity he served until his retirement in August, 1929.

M. V. Hynes, assistant superintendent on the Baltimore & Ohio at Indianapolis, Ind., and formerly superintendent with the same headquarters, died on May 28 at his home in that city. Mr. Hynes was born on July 28, 1868, at Cincinnati, Ohio, and entered railway service on June 1, 1889, as a rodman on the Cincinnati, Hamilton & Dayton (now part of the B. & O.). From January, 1890, to August, 1900, he held the position of assistant engineer and at the end of this period he went with the Cleveland, Cincinnati, Chicago & St. Louis as a supervisor of track. Mr. Hynes returned to the C. H. & D. in June, 1901, as engineer of construction, being appointed a roadmaster in 1904. In the following year he was advanced to division engineer and in March, 1912, he was further promoted to engineer maintenance of way. In June of the same year, Mr. Hynes was transferred to the operating department as superintendent, holding this position at various points until December, 1915, when he was made general superintendent of the Cincinnati, Indianapolis & Western (part of the B. & O.). In June, 1927, he was appointed superintendent on the B. & O. at Indianapolis, being made assistant superintendent there in 1932.

Tables of Revenues and Expenses of Railways begin on next left-hand page

LOWER MAINTENANCE AND LESS FUEL . . result from applying the BOOSTER



"With the Booster-equipped light Pacifics we were able to handle trains on a shorter schedule than with the heavy Pacifics due to more rapid acceleration. In addition, the numerous complaints which had been made on account of rough handling were eliminated. The economies effected were in reduction of fuel consumption and reduction in maintenance and on trains where the Booster light Pacific replaced the non-booster heavy Pacific there was a saving of 15% in fuel and 10% in maintenance."

Supt. of Motive Power of Western Road.

Intensive power production calls for the incorporation of The Locomotive Booster in the design of every locomotive—large and small—old and new. In no other way can you get the greatest work out of every pound of metal. « Unless a locomotive has a Booster, it must be built heavier in order to get the required tractive power to start the load it can haul at speed. « Once underway, such a locomotive carries excess weight. It is not loaded to capacity. It has a pair of drivers which could be dispensed with, as far as hauling ability is concerned. « Contrast this with a Booster-equipped engine loaded according to capacity at speed. The Booster is cut in only when needed. It uses idle weight and spare steam for starting, accelerating and to maintain speed on grades. « Greater tonnage is hauled, resulting in lower operating costs.

THE LOCOMOTIVE BOOSTER

FRANKLIN RAILWAY SUPPLY CO., INC.

NEW YORK CHICAGO MONTREAL

Revenues and Expenses of Railways

MONTH OF APRIL AND FOUR MONTHS OF CALENDAR YEAR 1934

Name of road		Av. mileage operated during period	Operating revenues			Operating expenses						Operating ratio	Net from railway operation	Operating income	Net railway operating income	Net ry. operating income, 1933
			Freight	Passenger	Total (inc. misc.)	Maintenance of—Way and structures	Maintenance of—Equipment	Traffic	Transportation	General	Total					
Akron, Canton & Youngstown	April	171	$147,163	$28	$158,241	$21,052	$15,912	$7,654	$45,539	$7,773	$97,898	61.9	$60,343	$49,295	$31,344	$18,600
	4 mos.	171	575,989	121	616,604	68,704	51,612	30,173	180,635	30,619	361,711	58.7	254,893	211,496	147,183	43,515
Alton	April	950	715,399	111,501	985,653	166,147	169,294	46,744	413,853	38,604	845,861	85.8	139,792	67,276	—64,546	67,130
	4 mos.	950	2,784,276	483,602	3,873,187	429,473	616,385	180,753	1,664,177	182,624	3,119,092	80.5	754,095	467,056	—49,141	95,679
Atchison, Topeka & Santa Fe	April	9,540	6,924,771	783,048	8,461,382	1,233,036	2,125,415	302,273	2,870,090	373,550	6,906,613	81.6	1,554,769	826,632	968,872	370,289
	4 mos.	9,548	25,332,090	3,287,326	31,568,936	3,799,860	8,168,192	1,202,056	11,378,192	1,443,666	26,003,032	82.4	5,565,904	2,504,202	2,809,484	—550,335
Gulf, Colorado & Santa Fe	April	1,918	801,727	43,112	917,533	295,668	260,454	48,670	370,590	59,775	1,035,144	112.8	—117,611	—200,156	—273,110	—189,740
	4 mos.	1,918	3,097,139	161,343	3,553,282	754,286	1,012,734	192,911	1,457,236	253,433	3,670,404	103.3	—117,122	—447,628	—774,975	—793,523
Panhandle & Santa Fe	April	1,878	577,086	23,961	649,280	100,387	158,069	17,448	199,613	29,007	504,524	77.7	144,756	100,429	30,985	—9,717
	4 mos.	1,878	2,259,292	92,285	2,536,184	327,724	611,485	69,750	790,159	125,291	1,924,362	75.9	611,822	434,640	138,429	—112,899
Atlanta & West Point	April	93	91,690	16,318	128,340	22,314	28,143	6,817	48,862	8,524	117,044	91.2	11,296	4,064	—7,520	—30,748
	4 mos.	93	341,178	64,237	486,494	74,865	102,792	27,479	192,817	29,422	435,841	89.6	50,653	21,763	—22,287	—116,917
Western of Alabama	April	133	74,984	16,464	106,568	20,892	31,574	7,143	44,799	7,399	113,741	106.7	—7,173	—15,188	—11,024	—7,543
	4 mos.	133	326,731	66,452	452,748	82,449	123,983	27,753	178,106	29,032	448,237	99.0	4,511	—27,535	—9,615	—26,238
Atlanta, Birmingham & Coast	April	639	204,969	5,844	239,917	38,383	49,999	22,574	100,683	15,832	236,833	98.7	3,084	—9,488	—22,939	—10,998
	4 mos.	639	856,462	19,966	992,232	159,100	212,403	86,243	394,051	62,478	953,950	96.1	38,282	—11,921	—74,214	—115,339
Atlantic Coast Line	April	5,145	2,870,847	602,378	3,891,799	450,194	672,668	111,079	1,294,563	128,543	2,693,185	69.2	1,198,614	697,828	505,875	671,449
	4 mos.	5,145	11,936,966	2,693,121	16,521,151	1,749,297	2,616,977	479,509	5,383,215	516,107	10,939,832	66.2	5,581,319	3,679,581	3,125,655	2,482,161
Charleston & Western Carolina	April	342	194,129	1,074	200,247	26,767	25,517	5,909	56,060	5,683	119,936	59.9	80,311	62,306	57,444	73,503
	4 mos.	342	721,265	4,424	744,084	95,255	96,357	22,892	220,498	19,064	454,066	61.0	290,018	222,011	206,790	140,178
Baltimore & Ohio	April	6,384	9,265,681	840,040	10,880,896	1,074,203	2,674,768	344,970	3,841,810	541,809	8,576,655	78.8	2,304,241	1,632,419	1,155,911	1,479,223
	4 mos.	6,384	38,943,334	3,072,135	44,866,748	3,764,702	10,803,613	1,390,723	16,054,664	2,197,362	34,563,088	77.0	10,303,660	7,586,589	6,316,840	5,290,619
Staten Island Rapid Transit	April	23	50,756	81,339	140,054	7,852	12,981	1,999	79,399	12,537	114,768	81.9	25,286	10,286	—2,720	10,367
	4 mos.	23	237,243	320,655	585,576	37,227	52,923	6,756	329,720	52,364	478,990	81.8	106,586	46,079	—27,268	—14,237
Bangor & Aroostook	April	603	590,364	32,446	644,550	94,268	87,311	4,834	126,309	23,688	336,955	52.3	307,595	246,936	241,166	251,213
	4 mos.	603	2,403,699	154,051	2,639,886	401,573	371,148	17,982	586,967	92,362	1,472,485	55.8	1,167,401	945,136	877,348	1,012,050
Bessemer & Lake Erie	April	225	625,137	759	634,627	93,637	285,407	11,125	129,097	32,871	551,964	87.0	82,663	63,441	65,551	—21,343
	4 mos.	225	1,704,956	3,542	1,742,398	258,747	1,096,216	44,595	484,903	135,741	2,019,705	115.9	—277,307	—333,976	—251,730	—463,843
Boston & Maine	April	2,044	2,487,637	501,531	3,490,333	507,842	593,466	52,522	1,394,043	168,617	2,723,722	78.0	766,661	557,383	370,950	425,432
	4 mos.	2,062	10,127,788	2,305,125	14,459,850	1,982,209	2,516,676	221,767	5,916,686	669,197	11,347,615	78.5	3,112,235	2,357,871	1,638,438	1,379,049
Burlington-Rock Island	April	280	56,593	767	61,273	8,165	14,067	3,102	33,678	7,000	66,012	107.7	—4,739	—9,548	—14,978	—26,083
	4 mos.	280	238,761	3,210	257,715	39,671	50,984	12,696	141,872	28,514	273,733	106.2	—16,018	—35,258	—69,916	—75,614
Cambria & Indiana	April	37	64,088	.....	64,274	6,553	41,448	414	9,835	7,155	65,405	101.76	—1,131	—11,071	48,817	53,787
	4 mos.	37	367,741	.....	368,526	22,171	154,248	1,624	47,273	29,532	254,848	69.15	113,678	51,499	334,776	330,057
Canadian Pac. Lines in Maine	April	233	178,240	15,999	209,975	28,475	33,990	8,287	80,272	5,755	158,937	75.7	51,038	44,038	17,570	—11,460
	4 mos.	233	851,219	62,354	962,901	119,115	159,613	35,340	353,677	24,094	693,997	72.0	268,904	240,869	[illegible]3,669	84,626
Canadian Pac. Lines in Vermont	April	85	65,549	8,534	90,120	12,561	21,165	3,686	53,070	4,047	95,708	106.2	—5,[illegible]	—1[illegible]	30,798	—36,084
	4 mos.	85	220,910	40,821	317,809	50,074	83,223	15,789	220,162	16,144	386,571	121.6	—68,762	—89,177	—157,597	—184,263
Central of Georgia	April	1,926	895,933	98,735	1,149,041	156,257	264,227	48,382	444,590	72,892	991,913	86.3	157,128	83,501	44,560	22,181
	4 mos.	1,926	3,653,837	400,521	4,614,263	504,674	1,051,415	191,629	1,783,894	276,008	3,832,128	83.1	782,135	487,696	302,394	—136,776
Central New Jersey	April	689	1,832,171	328,293	2,313,451	145,402	508,429	41,780	941,167	86,928	1,737,279	75.1	576,172	272,651	115,652	77,479
	4 mos.	689	8,073,073	1,336,094	10,000,679	536,584	1,750,339	161,873	3,966,493	355,457	6,827,132	68.3	3,173,547	2,329,189	1,849,419	1,126,592
Central Vermont	April	455	335,524	32,649	413,711	74,555	92,874	12,523	191,027	20,137	391,166	94.6	22,545	6,570	—11,359	—27,870
	4 mos.	455	1,339,040	151,182	1,636,298	239,534	371,512	50,874	805,000	79,418	1,546,517	94.6	89,781	25,221	—20,108	—49,957
Chesapeake & Ohio	April	3,121	8,278,722	267,159	8,856,286	931,048	1,692,557	167,263	1,935,860	271,857	5,008,455	56.6	3,847,831	2,965,207	2,839,198	2,122,547
	4 mos.	3,121	34,144,145	867,916	36,105,703	3,629,948	6,996,228	650,312	7,903,071	1,099,874	20,325,608	56.3	15,780,095	12,309,192	12,114,322	8,795,348
Chicago & Eastern Illinois	April	938	744,738	77,690	935,835	126,763	140,665	49,711	410,021	54,108	788,316	84.2	147,519	97,289	—7,684	—99,030
	4 mos.	938	3,416,458	314,110	4,179,441	491,040	705,906	197,799	1,728,241	225,536	3,354,529	80.3	824,912	514,032	42,398	—381,011
Chicago & Illinois Midland	April	131	181,134	1,024	188,033	22,789	52,656	14,758	55,645	15,126	160,949	85.6	27,084	25,256	29,371	73,838
	4 mos.	131	914,936	4,229	944,778	99,357	215,173	63,476	258,399	62,799	699,179	74.0	245,599	216,400	224,807	260,195
Chicago & North Western	April	8,442	4,592,748	584,630	5,825,010	835,051	1,450,616	146,988	2,371,715	269,709	5,097,929	87.5	727,081	176,024	18,571	—239,698
	4 mos.	8,442	18,186,912	2,278,164	23,134,228	2,463,795	5,266,308	586,274	9,539,247	1,069,562	19,031,433	82.3	4,102,795	1,897,240	1,183,247	—1,702,943
Chicago, Burlington & Quincy	April	9,182	4,948,232	411,263	6,025,756	969,495	1,054,432	224,622	2,255,388	283,804	4,817,606	80.0	1,208,150	622,962	343,543	348,914
	4 mos.	9,182	20,368,788	1,680,848	24,715,655	2,441,528	4,141,632	799,426	9,178,306	1,139,821	17,858,895	72.3	6,856,760	4,515,378	3,404,[illegible]4	820,596
Chicago Great Western	April	1,518	1,067,496	41,352	1,180,812	145,385	177,737	49,926	466,221	45,369	885,154	75.0	295,658	241,226	51,596	—28,984
	4 mos.	1,518	4,245,062	143,602	4,680,997	601,819	760,304	204,718	1,886,429	186,010	3,637,470	77.7	1,043,527	825,607	106,935	—433,899
Chicago, Indianapolis & Louisville	April	644	466,143	47,058	586,197	62,205	166,570	25,824	253,862	23,435	537,479	91.7	48,718	—3,192	—98,090	—40,498
	4 mos.	644	1,951,272	165,134	2,400,782	199,249	604,565	98,189	1,035,249	90,299	2,048,265	85.3	352,517	177,964	—196,742	—229,955
Chicago, Mil., St. Paul & Pacific	April	11,165	5,539,521	354,928	6,580,833	761,087	1,438,809	186,096	2,621,815	249,980	5,279,472	80.2	1,301,361	703,572	321,992	500,465
	4 mos.	11,183	22,895,496	1,347,606	26,916,682	2,690,898	5,733,236	756,993	10,770,673	1,006,918	21,062,521	78.3	5,854,161	3,465,067	1,872,661	—368,327

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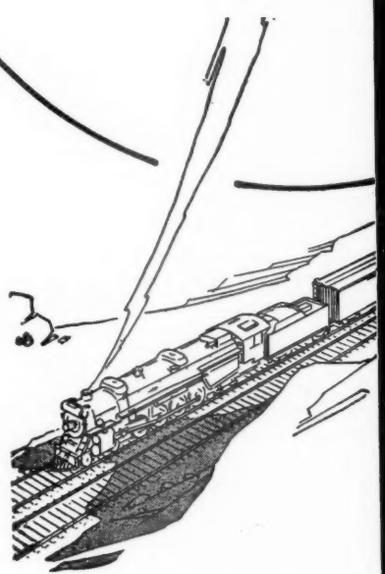
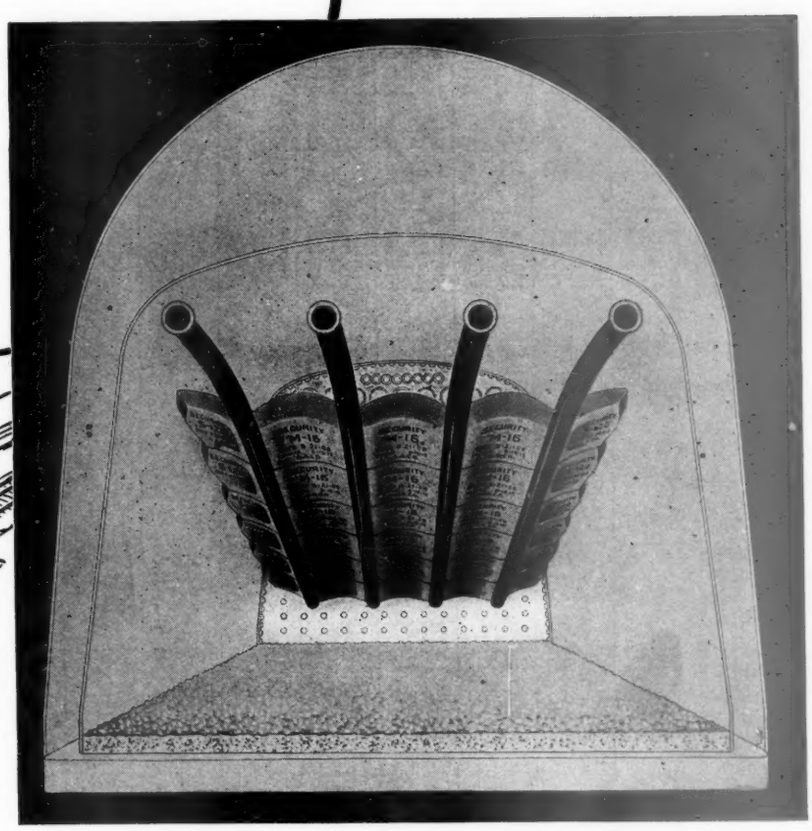
Fallen Arches Bring Grief





There's More to
SECURITY ARCHES
Than Just Brick

Fallen Arches can cripple a railroad division as quickly as they can an individual — so why take chances with untried Arch Brick?

The quality of brick, of service and of engineering that you get from the American Arch Company has been established for 25 years.

You know how it will stand up in the firebox, not in a few test cases but for year after year, involving hundreds and thousands of locomotives.

This, after all, is the important element — that locomotive Arches give efficient service, as free as possible from defects that may cause train delays.

You know you can get such service when the American Arch Company is given the responsibility of furnishing Arch Brick.

HARBISON-WALKER REFRACTORIES CO.

Refractory Specialists

NRA MEMBER U.S. WE DO OUR PART

AMERICAN ARCH CO.
INCORPORATED

Locomotive Combustion Specialists » » »

Revenues and Expenses of Railways

MONTH OF APRIL AND FOUR MONTHS OF CALENDAR YEAR 1934—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	General	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income	Net ry. operating income, 1933
Chicago, Rock Island & Pacific	April	7,612	$3,995,944	$433,794	$4,920,153	$516,395	$1,260,481	$177,669	$2,060,336	$274,609	$4,347,951	88.4	$572,202	$156,289	—$132,176	$304,779
	4 mos.	7,611	16,181,637	1,672,287	19,925,064	1,920,483	4,654,182	691,490	8,341,821	1,120,301	16,955,347	85.1	2,969,717	1,309,255	231,520	—511,672
Chicago Rock Island & Gulf	April	721	228,804	17,754	250,235	37,753	36,981	15,767	108,450	18,670	220,283	88.0	29,952	8,152	—51,491	—31,214
	4 mos.	721	998,460	71,624	1,092,645	141,661	167,139	60,594	435,044	72,248	885,960	81.1	206,685	121,023	—106,024	—124,730
Chic., St. Paul, Minn. & Omaha	April	1,663	958,782	92,915	1,138,353	151,000	201,558	30,813	520,077	65,285	976,473	85.8	161,880	86,364	13,558	—39,504
	4 mos.	1,663	3,926,707	365,807	4,630,187	442,364	767,849	122,307	2,171,453	260,938	3,796,687	82.0	833,500	526,551	247,567	—341,962
Churchfield	April	309	465,115	3,265	472,976	33,500	111,987	15,759	88,790	13,429	263,465	55.7	209,511	169,497	187,038	90,756
	4 mos.	309	1,983,317	11,604	2,015,870	160,661	411,589	63,135	337,110	51,798	1,024,293	50.8	991,577	831,510	935,862	467,491
Colorado & Southern	April	1,029	310,940	17,856	372,116	52,304	86,401	11,407	158,505	31,102	340,189	91.4	31,927	—24,499	—39,997	—74,347
	4 mos.	1,029	1,294,190	76,038	1,546,398	190,005	338,675	44,981	645,659	127,063	1,347,362	87.1	199,036	—26,200	—90,217	—166,992
Ft. Worth & Denver City	April	804	312,166	31,094	401,489	28,888	61,471	15,326	132,122	30,945	270,461	67.4	131,028	100,453	75,615	30,480
	4 mos.	804	1,318,520	118,258	1,655,254	113,777	272,708	62,205	529,955	126,001	1,110,653	67.1	544,601	423,242	310,279	219,684
Columbus & Greenville	April	167	59,960	5,498	70,703	15,917	11,951	3,366	29,963	8,374	69,571	98.4	1,132	—321	293	11,403
	4 mos.	167	245,623	20,038	286,296	54,570	43,302	13,538	122,718	35,432	269,560	94.2	16,736	6,488	6,491	—17,640
Delaware & Hudson	April	848	1,863,424	77,387	2,047,145	273,622	538,286	47,379	754,699	131,425	1,749,723	85.5	297,422	227,040	247,195	—242,636
	4 mos.	848	7,756,586	363,081	8,498,517	1,111,167	2,129,161	188,187	3,254,488	535,226	7,234,254	85.1	1,264,263	983,549	1,058,715	—724,400
Delaware, Lackawanna & Western	April	992	2,891,842	517,302	3,874,834	218,059	791,690	102,856	1,626,622	153,002	2,919,224	75.3	955,610	604,573	580,892	1,665
	4 mos.	993	11,326,566	2,103,797	15,201,513	980,438	3,046,841	413,976	6,795,179	612,230	11,959,786	78.7	3,241,727	1,838,148	1,765,846	—59,682
Denver & Rio Grande Western	April	2,469	1,148,299	59,892	1,288,041	182,609	353,677	45,369	439,322	78,809	1,103,211	85.7	184,830	34,162	29,113	43,628
	4 mos.	2,469	4,809,080	216,966	5,330,600	567,132	1,318,765	175,092	1,742,512	294,401	4,111,299	77.1	1,219,301	618,117	640,745	169,904
Denver & Salt Lake	April	232	69,000	3,016	79,388	9,789	20,746	1,491	20,783	11,401	64,210	80.9	15,177	1,177	3,418	—2,822
	4 mos.	232	338,277	13,400	390,664	43,470	80,494	6,009	89,747	42,277	261,997	67.1	128,666	72,628	83,396	88,713
Detroit & Mackinac	April	242	42,252	2,612	50,746	9,793	7,291	762	20,232	3,529	41,598	82.0	9,148	4,591	3,257	—2,156
	4 mos.	242	145,832	10,681	176,305	31,513	27,249	3,496	82,833	13,886	158,967	90.2	17,338	—1,232	—7,581	—32,207
Detroit & Toledo Shore Line	April	50	279,197	.....	281,177	28,167	22,316	6,474	65,939	6,458	129,350	46.0	151,827	129,237	77,345	15,808
	4 mos.	50	1,296,545	.....	1,303,761	74,641	92,336	26,477	296,541	25,725	515,727	39.6	788,034	668,699	437,216	192,162
Detroit, Toledo & Ironton	April	472	511,636	259	530,331	51,137	76,323	9,810	114,273	18,222	266,005	50.2	264,326	217,053	193,266	38,757
	4 mos.	472	2,315,932	1,077	2,385,293	192,771	287,489	40,242	486,002	67,617	1,060,608	44.5	1,324,685	1,084,010	973,061	250,081
Duluth, Missabe & Northern	April	563	92,079	4,941	116,709	123,195	206,036	2,815	127,376	40,431	499,853	428.3	—383,144	—558,096	—556,721	—264,146
	4 mos.	563	298,342	10,421	378,164	399,584	936,709	12,261	496,068	156,206	2,000,816	529.1	—1,622,652	—1,831,896	—1,832,508	—1,197,985
Duluth, Winnipeg & Pacific	April	178	70,183	2,538	75,895	18,292	19,122	1,944	31,773	2,410	73,541	96.9	2,354	—1,839	206	—9,123
	4 mos.	178	278,798	8,280	296,087	58,917	73,968	7,302	139,360	21,818	301,398	101.8	—5,311	—20,683	10,675	—33,590
Elgin, Joliet & Eastern	April	446	919,181	.....	1,011,485	91,868	227,866	12,301	351,947	40,785	724,700	71.6	286,785	206,081	169,153	—18,236
	4 mos.	446	3,253,533	.....	3,546,360	341,358	850,504	49,239	1,343,920	170,412	2,755,314	77.7	791,046	468,305	303,439	—298,536
Erie Railroad	April	2,045	4,574,797	385,234	5,395,677	524,690	1,200,122	135,182	1,976,519	247,711	4,090,409	75.8	1,305,268	1,002,285	885,538	353,575
	4 mos.	2,045	18,748,534	1,573,959	21,951,264	1,729,562	4,558,889	529,331	8,179,421	978,396	16,017,028	73.0	5,934,236	4,722,744	4,494,569	1,778,618
Chicago & Erie	April	269	694,606	9,500	755,560	74,018	88,456	23,260	190,385	33,915	410,011	54.3	345,549	313,041	43,511	92,181
	4 mos.	269	2,821,106	38,925	3,061,041	255,587	351,327	90,729	795,134	134,349	1,626,283	53.1	1,434,758	1,304,860	314,171	108,089
New Jersey & New York	April	45	16,304	54,041	72,345	9,017	23,419	1,196	48,166	3,810	85,608	118.3	—13,263	—17,413	—33,859	—29,039
	4 mos.	45	74,298	220,817	302,940	27,478	98,829	4,923	209,960	15,145	356,335	117.6	—53,395	—70,006	—136,556	—105,520
N. Y., Susquehanna & Western	April	131	240,934	26,324	281,772	25,126	52,123	4,141	108,214	11,425	201,029	71.3	80,743	57,689	38,251	5,566
	4 mos.	131	1,076,511	104,491	1,246,390	86,467	218,774	16,624	485,444	44,540	851,848	68.3	394,542	302,341	232,276	78,109
Florida East Coast	April	839	654,460	210,888	967,166	110,523	110,835	19,558	255,662	37,838	541,293	56.0	425,873	350,213	279,398	177,657
	4 mos.	839	2,428,708	1,091,599	3,999,404	452,159	539,550	84,494	1,008,388	152,473	2,279,939	57.0	1,719,465	1,417,990	1,194,591	996,453
Fort Smith & Western	April	249	40,720	931	45,323	12,604	9,759	5,215	17,799	3,957	48,521	107.1	—3,198	—4,399	—9,204	—9,884
	4 mos.	249	194,571	3,979	214,825	54,031	42,351	20,274	74,901	15,838	203,072	94.5	11,753	4,941	—12,046	—17,176
Georgia R. R.	April	329	232,641	14,062	266,969	30,628	55,193	16,609	109,445	12,999	225,344	84.4	41,625	36,337	42,690	59,406
	4 mos.	329	944,803	48,523	1,084,657	105,941	234,866	65,239	441,393	53,393	901,860	83.2	182,797	161,610	182,448	127,422
Georgia & Florida	April	465	79,553	1,960	86,591	20,658	16,905	7,771	34,251	5,517	85,266	98.5	1,325	—3,675	—5,196	—6,436
	4 mos.	465	346,124	6,849	373,369	87,209	70,073	30,535	138,397	22,051	348,817	93.4	24,552	4,097	—7,096	—67,725
Grand Trunk Western	April	1,006	1,476,027	56,474	1,661,830	177,993	335,371	33,766	641,621	80,005	1,272,388	76.6	389,442	308,104	162,996	—151,639
	4 mos.	1,007	5,642,808	215,171	6,307,634	658,769	1,287,487	126,808	2,570,167	315,086	4,973,113	78.8	1,334,521	1,013,414	526,107	—521,569
Canadian Nat'l Lines in New Eng.	April	172	69,306	3,933	82,210	11,793	26,017	2,811	48,984	9,123	98,937	120.3	—16,727	—29,418	—63,701	—82,711
	4 mos.	172	305,827	20,217	358,225	74,055	78,015	10,537	221,652	37,192	423,580	118.2	—65,355	—107,794	—253,814	—272,902
Great Northern	April	8,360	3,993,987	262,439	4,661,336	405,621	1,000,121	179,684	1,597,860	196,947	3,421,819	73.4	1,239,517	653,310	552,935	178,497
	4 mos.	8,361	14,783,249	1,009,731	17,421,092	1,592,865	3,647,630	644,263	6,702,722	790,073	13,551,882	77.8	3,869,210	1,643,805	1,131,406	—1,146,869
Green Bay & Western	April	233	87,799	831	92,746	16,451	20,701	4,443	38,883	2,874	83,334	89.8	9,412	3,864	2,543	1,364
	4 mos.	233	343,317	3,250	362,586	63,615	76,263	17,987	160,568	10,467	328,844	90.6	33,742	11,539	5,575	6,544
Gulf & Ship Island	April	259	91,807	6,689	114,719	16,019	19,312	2,495	47,239	4,409	89,851	78.3	24,868	9,224	—2,297	—16,324
	4 mos.	262	345,664	26,399	434,082	62,563	64,619	9,204	191,906	19,400	348,972	80.4	85,110	23,194	—18,980	—66,435

Continued on next left-hand page

DOWN GOES Locomotive Maintenance

when a railroad uses the Elesco unit remanufacturing service for reconditioning unserviceable superheater units. This service transforms unserviceable superheater units into units ready for immediate application and for many years of full-efficiency, trouble-free duty.

Remanufactured superheater units are equivalent in every way to new units. They are assurance against engine failures from superheater troubles. They are assurance of full superheating economy. Yet, the cost for remanufactured units is about half that for new units.

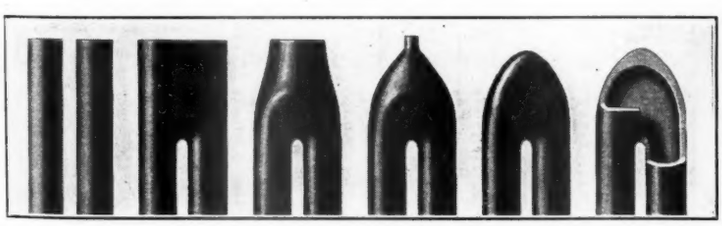
Have unserviceable superheater units remanufactured during class repair periods to lower locomotive maintenance.

Remanufactured superheater units are composed only of sound tubing as proved by tests. They are formed with new, integrally-forged return bends, a guarantee against failures in service, and assurance of proper areas and proportions for full superheating effect.

Remanufactured superheater units have new integrally-forged and machine-finished ball ends that assure the tight metal-to-metal contact joints. Each unit also has a clamp and bolt, especially heat-treated for superheater service, which make possible proper application in the backshop to prevent leaky joints.

Remanufactured superheater units, like new units, are fitted with cinder shields as provision against cinder cutting, which has become prevalent during the past ten years. These cinder shields protect the unit tubing from damage during the service or mileage period of the locomotive.

Remanufactured superheater units are equipped with with new bands and supports which assure proper location in the flues.



Steps in forging superheater return bends. They are integrally-forged from the tubing itself.

The Superheater Company

Representative of AMERICAN THROTTLE COMPANY, Inc.

60 East 42nd Street
NEW YORK

ELESCO

Peoples Gas Building
CHICAGO

A-884

Canada: The Superheater Company, Limited, Montreal

Superheaters - Feed Water Heaters - Exhaust Steam Injectors - Superheated Steam Pyrometers - American Throttles

Revenues and Expenses of Railways

MONTH OF APRIL AND FOUR MONTHS OF CALENDAR YEAR 1934—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues			Operating expenses						Operating ratio	Net from railway operation	Operating income	Net railway operating income	Net ry. operating income, 1933
			Freight	Passenger	Total (inc. misc.)	Maintenance of—Way and structures	Maintenance of—Equipment	Traffic	Transportation	General	Total					
Gulf, Mobile & Northern	April	961	$455,043	$16,028	$492,979	$57,247	$71,120	$34,363	$141,008	$25,476	$329,214	66.78	$163,765	$132,765	$75,216	$74,577
	4 mos.	961	1,607,491	65,570	1,754,598	215,457	244,281	137,919	537,462	93,362	1,228,481	70.01	526,117	402,071	191,692	112,913
Illinois Central	April	5,011	5,055,519	594,510	6,466,122	515,276	1,192,649	175,859	2,364,564	325,844	4,610,370	71.3	1,855,752	1,436,469	1,206,547	1,146,610
	4 mos.	5,011	20,770,427	2,457,465	25,533,913	1,771,382	5,028,642	663,483	9,604,677	1,278,214	18,483,501	72.4	7,050,412	5,292,638	4,557,080	3,028,102
Yazoo & Mississippi Valley	April	1,636	689,281	56,307	830,945	77,862	127,379	25,948	398,744	54,498	685,784	82.5	145,161	43,011	—55,186	2,391
	4 mos.	1,647	3,077,717	211,560	3,587,237	258,009	559,194	93,511	1,600,760	200,068	2,714,622	75.7	872,615	435,893	46,163	—73,059
Illinois Central System	April	6,647	5,744,800	650,817	7,297,067	593,138	1,320,028	201,807	2,763,308	380,342	5,296,154	72.6	2,000,913	1,477,569	1,161,069	1,158,605
	4 mos.	6,658	23,848,144	2,669,025	29,121,150	2,029,391	5,587,836	756,994	11,205,437	1,478,282	21,198,123	72.8	7,923,027	5,720,619	4,642,317	2,991,985
Illinois Terminal	April	525	294,372	59,874	385,002	43,777	62,528	14,676	141,034	15,774	278,965	72.46	106,037	78,692	65,578	75,325
	4 mos.	525	1,279,356	227,962	1,603,619	179,049	243,052	58,779	585,500	63,461	1,132,189	70.60	471,430	369,872	277,615	164,304
Kansas City Southern System	April	882	738,877	15,136	853,681	79,392	141,111	47,624	260,042	72,772	602,117	70.5	251,564	187,541	143,144	82,678
	4 mos.	882	2,728,055	57,979	3,158,784	295,676	526,324	186,763	1,032,864	272,698	2,318,936	73.4	839,848	584,310	442,397	211,344
Kansas, Oklahoma & Gulf	April	326	170,743	344	174,417	17,863	14,391	7,463	38,956	8,254	86,320	49.5	88,097	73,993	56,320	23,945
	4 mos.	326	622,390	1,551	635,772	48,760	49,196	28,889	149,017	32,205	307,066	48.3	328,706	273,511	209,556	116,870
Lake Superior & Ishpeming	April	160	32,344	191	33,962	23,703	16,258	551	18,111	5,674	64,297	189.3	—30,335	—43,604	—45,541	—39,536
	4 mos.	160	120,292	667	127,667	74,943	79,272	2,062	74,222	23,388	253,887	198.9	—126,220	—178,111	—187,860	—157,474
Lehigh & Hudson River	April	96	115,390	114	117,897	15,673	21,140	3,323	38,556	6,092	84,784	71.9	33,113	24,428	9,642	7,900
	4 mos.	96	490,433	775	510,163	58,029	86,980	13,065	171,594	25,330	354,998	69.6	155,165	112,278	61,916	35,451
Lehigh & New England	April	227	251,537	439	254,322	44,645	65,773	5,494	91,088	14,278	221,168	87.0	33,154	27,877	27,253	46,415
	4 mos.	227	1,240,308	1,977	1,250,993	123,613	278,666	21,103	399,145	58,348	880,765	70.4	370,228	315,261	315,130	162,690
Lehigh Valley	April	1,353	2,901,800	185,958	3,329,512	243,186	636,616	108,635	1,390,391	121,809	2,515,800	75.6	813,712	618,143	413,385	—143,308
	4 mos.	1,353	12,386,858	774,128	14,111,332	812,625	2,272,387	427,804	6,066,514	510,600	10,146,870	71.9	3,964,462	3,181,808	2,572,685	257,643
Louisiana & Arkansas	April	608	309,543	8,560	349,520	43,544	69,849	25,387	82,359	18,357	239,800	68.6	109,720	80,132	73,996	71,207
	4 mos.	608	1,252,987	31,247	1,388,502	174,745	234,044	91,353	348,099	73,246	922,748	66.5	465,754	346,580	310,812	285,696
Louisiana, Arkansas & Texas	April	255	72,715	247	77,615	16,963	7,876	4,102	26,817	4,580	60,338	77.7	17,277	14,772	883	—4,323
	4 mos.	255	299,865	1,021	319,180	59,417	39,403	16,617	108,593	17,540	241,570	75.7	77,610	68,112	8,541	—44,338
Louisville & Nashville	April	5,069	4,717,862	430,193	5,633,548	707,884	1,283,220	156,798	1,983,896	276,203	4,441,765	78.8	1,191,783	848,942	853,686	105,823
	4 mos.	5,071	20,409,552	1,657,206	23,941,213	2,653,756	4,751,139	684,425	8,116,629	1,096,402	17,439,566	72.8	6,501,647	5,128,940	5,258,991	2,189,525
Maine Central	April	1,046	733,900	64,337	879,104	180,454	149,438	9,827	324,783	33,624	698,126	79.4	180,978	133,362	82,441	132,860
	4 mos.	1,046	3,070,334	302,353	3,684,271	577,765	737,986	37,559	1,481,508	147,229	2,982,043	80.9	702,228	510,865	261,595	423,565
Midland Valley	April	363	104,406	378	108,604	20,228	11,299	2,136	28,378	6,304	67,469	62.1	41,135	36,193	28,537	30,971
	4 mos.	363	400,119	1,607	416,731	60,211	42,987	9,599	113,361	25,381	249,379	59.8	167,352	142,107	109,283	104,537
Minneapolis & St. Louis	April	1,627	508,478	11,713	558,486	79,532	130,187	20,154	274,635	31,528	535,645	95.9	22,841	—16,844	—44,059	—31,322
	4 mos.	1,627	2,121,220	51,224	2,322,827	236,099	524,488	83,505	1,156,660	128,541	2,127,250	91.6	195,577	53,696	—31,287	—291,465
Minn., St. Paul & S. S. Marie	April	4,304	1,640,774	74,474	1,859,577	264,659	368,985	58,284	732,927	106,048	1,537,351	82.7	322,226	194,081	59,303	125,734
	4 mos.	4,304	5,812,518	274,264	6,636,879	885,743	1,494,384	231,404	2,952,612	421,661	6,000,086	90.4	636,793	54,551	—399,512	—1,072,858
Duluth, South Shore & Atlantic	April	559	149,970	9,502	172,760	24,731	40,050	4,261	69,027	5,440	143,490	83.1	29,270	21,257	10,653	—18,035
	4 mos.	559	531,700	35,168	616,130	103,567	156,965	17,619	285,334	22,615	584,904	94.9	31,226	—25,346	—63,402	—147,102
Spokane International	April	163	31,583	1,248	37,614	10,797	4,299	1,781	18,402	3,981	39,260	104.4	—1,646	—5,622	—7,492	—17,462
	4 mos.	163	117,706	5,488	140,749	32,839	19,620	6,753	74,184	16,568	149,964	106.6	—9,215	—25,198	—33,064	—73,802
Mississippi Central	April	150	54,941	1,482	58,368	8,163	10,656	7,041	16,952	5,143	47,955	82.2	10,413	7,605	4,788	—2,385
	4 mos.	150	206,237	4,980	219,123	34,970	38,570	27,558	66,135	20,987	188,220	85.9	30,903	19,629	7,851	—23,401
Missouri & North Arkansas	April	364	71,597	1,493	81,109	19,874	9,930	3,151	27,257	3,921	64,064	79.0	17,045	15,017	5,716	3,155
	4 mos.	364	290,211	4,718	322,989	86,881	43,450	13,585	116,363	14,588	274,617	85.0	48,372	40,220	1,607	—40,508
Missouri-Illinois	April	213	72,271	378	74,371	15,699	11,475	2,555	24,526	5,522	59,777	80.4	14,594	8,942	2,614	—4,475
	4 mos.	213	287,353	1,495	295,682	55,239	39,123	10,182	98,115	21,968	224,624	76.0	71,058	50,977	30,058	—32,853
Missouri-Kansas-Texas Lines	April	3,293	1,878,186	148,709	2,258,189	301,201	347,939	102,097	784,453	141,735	1,689,670	74.8	568,519	394,526	217,120	—31,288
	4 mos.	3,293	6,980,471	586,218	8,459,733	1,100,607	1,567,253	430,783	3,084,319	554,093	6,793,958	80.3	1,665,775	967,609	224,143	—545,179
Missouri Pacific	April	7,361	5,074,111	303,505	5,923,844	856,348	1,299,054	211,790	2,082,413	242,480	4,708,178	79.5	1,215,666	920,813	501,911	55,633
	4 mos.	7,361	20,339,487	1,175,325	23,571,916	2,894,686	4,860,225	874,391	8,462,586	998,604	18,156,582	77.0	5,415,334	4,107,154	2,472,784	638,974
Gulf Coast Lines	April	1,764	985,225	32,941	1,081,601	155,539	151,769	42,382	304,853	43,818	698,980	64.62	382,621	334,386	200,617	99,110
	4 mos.	1,765	3,544,825	123,159	3,876,571	502,507	579,226	172,010	1,095,443	180,471	2,522,022	65.06	1,354,549	1,162,046	695,980	228,637
International-Great Northern	April	1,159	920,562	45,918	1,074,108	134,125	180,409	26,564	397,674	42,648	790,789	73.62	283,319	247,940	117,280	153,313
	4 mos.	1,159	3,624,229	186,832	4,167,586	491,386	666,665	113,111	1,528,501	169,563	3,004,824	72.10	1,162,762	1,022,632	497,959	417,610
San Antonio, Uvalde & Gulf	April	316	89,837	2,621	99,832	24,207	8,485	4,208	34,226	4,070	75,196	75.3	24,636	20,879	3,399	—20,582
	4 mos.	316	401,226	11,055	438,289	64,909	38,381	17,120	133,252	16,897	270,462	61.7	167,827	152,896	67,146	—64,344
Mobile & Ohio	April	1,201	692,097	20,481	752,879	97,069	186,127	38,424	283,859	35,667	641,158	85.2	111,721	79,220	5,269	44,920
	4 mos.	1,201	2,673,132	81,651	2,908,670	385,483	696,481	157,924	1,071,296	141,746	2,452,978	84.3	455,692	322,181	33,255	—115,417
Monongahela	April	177	182,101	847	184,979	34,650	27,114	326	49,736	3,478	114,194	61.7	70,785	48,984	—15,451	52,018
	4 mos.	177	1,375,908	3,693	1,389,563	131,193	116,303	1,405	286,539	14,509	548,839	39.5	840,724	760,580	446,761	218,259

Continued on next left-hand page

RAILROAD DIESELS FOR RAILROAD MEN

— INJECTION SIDE —

Hood removed exposing complete power plant.

1 Muffler.
2 Exhaust manifold.
3 Fuel oil filter.
4 Fuel oil circulating pumps.
5 Governor.
6 Water circulating pump.
7 Generator—connected direct to oil engine.
8 Governor control leading under floor to throttle on control stand in cab.
9 Fuel oil pump control.
10 Traction motor blower.
11 Battery.

The importance of accessibility and its direct effect on maintenance costs is ingrained in the Alco organization through 100 years experience building railway motive power.

This series of advertisements (of which this is No. 3) will show why the Alco Diesel should be attractive to railroad men.

Always remember that the total cost of any motive power unit equals first cost plus operating cost plus maintenance. Considering these three factors as a whole the Alco Diesel becomes an outstanding purchase.

AMERICAN LOCOMOTIVE COMPANY

ALCO DIESEL

30 CHURCH STREET · NEW YORK · N.Y.

Revenues and Expenses of Railways

MONTH OF APRIL AND FOUR MONTHS OF CALENDAR YEAR 1934—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of— Way and structures	Equipment	Traffic	Transportation	General	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income	Net ry. operating income, 1933
Montour	April	57	$120,509	$3	$121,126	$9,583	$49,366	$1,048	$29,982	$6,171	$96,150	79.4	$24,976	$21,216	$44,703	$50,175
	4 mos.	57	546,955	3	549,306	41,539	200,080	4,215	131,848	21,617	399,299	72.7	150,007	135,008	198,575	200,657
Nashville, Chattanooga & St. Louis	April	1,203	954,387	70,851	1,133,760	155,200	264,109	53,933	422,273	60,683	955,007	84.2	178,753	143,112	112,235	160,803
	4 mos.	1,203	3,776,859	286,543	4,549,806	562,714	979,048	225,665	1,688,848	230,953	3,702,681	81.4	847,125	691,236	571,342	303,848
Nevada Northern	April	165	25,297	1,144	30,675	8,348	3,023	733	7,095	3,096	22,295	72.7	8,380	1,972	5,736	—5,885
	4 mos.	165	83,141	4,860	103,495	34,019	10,793	2,846	28,147	12,374	88,179	85.2	15,316	—9,985	5,931	—31,158
New York Central	April	11,413	17,724,146	4,115,502	24,940,917	2,297,617	5,340,923	508,509	8,923,294	1,031,232	18,391,245	73.7	6,549,672	4,173,122	2,587,045	1,471,081
	4 mos.	11,413	71,913,601	16,823,497	100,473,804	9,037,648	20,964,024	2,015,681	37,227,366	4,075,189	74,644,570	74.3	25,829,234	16,327,013	10,798,240	5,007,148
Pittsburgh & Lake Erie	April	233	1,118,558	46,053	1,206,891	97,439	419,990	24,717	439,570	61,701	1,050,144	87.0	156,747	76,839	215,530	104,904
	4 mos.	233	4,525,243	195,065	4,878,724	348,336	1,638,932	99,969	1,752,565	258,353	4,117,728	84.4	760,996	392,148	976,363	349,306
New York, Chicago & St. Louis	April	1,691	2,657,606	57,091	2,806,538	301,365	389,283	97,393	954,712	119,796	1,844,975	65.7	961,563	811,429	548,547	275,699
	4 mos.	1,691	10,901,729	210,985	11,496,272	951,894	1,639,349	392,579	3,903,343	493,140	7,365,658	64.1	4,130,614	3,526,467	2,424,359	767,276
New York, New Haven & Hartford	April	2,067	3,411,844	1,697,912	5,815,777	510,031	1,068,929	69,502	2,218,124	226,486	4,229,234	72.7	1,586,543	1,205,674	687,457	341,903
	4 mos.	2,067	13,855,820	7,225,250	23,915,508	2,612,831	4,223,973	265,994	9,288,649	898,924	17,845,844	74.6	6,069,664	4,637,329	2,448,924	1,097,074
New York Connecting	April	20	197,459	.....	209,894	12,583	7,454	.....	26,681	1,234	47,952	22.8	161,942	128,602	84,951	113,598
	4 mos.	20	921,430	.....	967,629	36,296	29,232	.....	115,165	4,043	184,736	19.1	782,893	648,563	495,244	466,909
New York, Ontario & Western	April	568	622,355	7,445	701,929	79,795	145,794	12,640	296,077	23,980	560,417	79.8	141,512	96,512	51,959	93,772
	4 mos.	568	2,971,734	35,304	3,298,535	297,665	591,142	45,254	1,425,239	100,104	2,480,813	75.2	817,722	634,041	449,100	570,844
Norfolk & Western	April	2,185	5,667,469	150,589	6,016,217	641,030	1,309,318	117,323	1,341,355	190,577	3,612,975	60.1	2,403,242	1,709,891	1,901,665	782,266
	4 mos.	2,185	22,941,794	525,631	24,232,001	2,371,293	5,311,168	454,338	5,483,434	769,722	14,440,824	59.6	9,791,177	7,015,421	7,577,924	4,710,073
Norfolk Southern	April	932	373,950	8,808	399,869	64,258	50,704	19,244	134,251	20,954	289,411	72.4	110,458	84,316	52,023	13,541
	4 mos.	932	1,360,419	33,558	1,469,566	260,739	199,417	72,792	532,996	88,522	1,154,466	78.6	315,100	210,668	105,378	—233,586
Northern Pacific	April	6,745	3,256,730	234,079	3,835,611	588,001	846,708	143,624	1,487,965	259,155	3,377,404	88.1	458,207	—22,687	279,996	—348,158
	4 mos.	6,745	12,280,495	846,516	14,552,738	1,494,630	3,247,276	570,993	5,957,833	1,026,145	12,500,680	85.9	2,052,058	142,008	1,317,741	—2,047,417
Northwestern Pacific	April	386	126,295	79,958	236,646	36,616	42,756	4,135	130,358	13,038	226,692	95.8	9,954	—7,095	—17,174	—40,986
	4 mos.	385	478,420	286,185	884,628	141,512	173,047	15,665	510,673	53,480	893,617	101.0	—8,989	—76,768	—112,956	—297,064
Oklahoma City-Ada-Atoka	April	132	27,226	275	29,217	5,218	1,437	596	10,515	2,023	19,673	67.3	9,544	6,777	—29	2,496
	4 mos.	132	104,238	1,303	112,214	18,865	4,805	2,658	41,955	6,193	73,872	65.8	38,342	26,413	—79	2,425
Pennsylvania Railroad	April	10,511	20,961,828	5,041,756	28,915,888	2,618,628	5,890,718	516,960	10,094,848	1,317,198	20,786,355	71.9	8,129,533	5,873,331	4,959,172	3,621,668
	4 mos.	10,511	83,888,699	19,064,443	113,937,069	10,148,215	3,148,755	2,156,193	41,410,658	5,249,345	83,499,724	73.3	30,437,345	22,851,321	19,638,708	12,501,737
Long Island	April	400	472,617	1,328,625	1,896,111	141,753	318,766	12,761	885,881	54,831	1,413,913	74.6	482,198	315,362	133,714	148,673
	4 mos.	400	2,047,301	5,109,616	7,530,399	770,083	1,226,204	46,106	3,634,741	216,238	5,893,224	78.3	1,637,175	1,141,785	473,586	830,551
Pere Marquette	April	2,241	2,065,683	48,436	2,228,770	224,535	481,674	59,216	839,269	87,871	1,695,920	76.1	532,850	444,527	305,075	—51,003
	4 mos.	2,247	8,295,337	200,811	8,925,208	846,395	1,838,715	233,383	3,325,703	349,307	6,605,210	74.0	2,319,998	1,913,805	1,479,869	—99,434
Pittsburg & Shawmut	April	102	32,659	564	33,924	11,315	18,828	1,266	13,608	3,562	48,579	143.2	—14,655	—15,136	—9,294	—1,139
	4 mos.	102	253,112	2,517	258,524	39,047	76,712	5,498	76,648	14,443	212,348	82.1	46,176	44,316	64,702	836
Pittsburgh & West Virginia	April	138	248,989	.....	258,067	22,181	77,922	15,455	51,024	15,182	189,291	73.3	68,776	45,175	82,832	62,210
	4 mos.	138	904,753	.....	943,820	69,692	242,266	54,459	190,039	53,288	638,824	67.7	304,996	211,684	340,699	125,796
Pittsburg, Shawmut & Northern	April	195	87,934	226	89,454	19,302	22,215	1,228	28,389	6,287	77,421	86.5	12,033	9,854	7,719	2,564
	4 mos.	195	365,544	770	382,934	57,086	91,021	5,077	130,133	25,305	308,622	80.6	74,312	65,479	41,816	3,738
Reading	April	1,461	3,858,407	246,554	4,314,528	316,806	871,642	69,249	1,623,739	191,414	3,089,054	71.6	1,225,474	933,426	962,700	687,956
	4 mos.	1,461	17,693,307	1,024,861	19,590,773	1,210,443	3,453,047	287,342	7,011,624	761,538	12,789,767	65.3	6,801,006	5,230,998	5,254,506	2,823,656
Penna.-Reading Seashore Lines	April	412	194,813	144,771	363,398	43,312	69,242	8,357	270,117	23,961	414,168	114.0	—50,770	—123,394	—218,957	—77,354
	4 mos.	412	988,800	494,675	1,571,260	184,988	263,660	28,640	1,183,057	96,623	1,755,075	111.7	—183,815	—450,513	—806,847	—319,176
Richmond, Fredericksburg & Potomac	April	117	288,009	148,674	572,236	52,621	141,671	7,605	217,365	28,717	463,710	81.0	108,526	82,071	34,768	85,646
	4 mos.	117	1,124,443	662,814	2,305,669	179,249	485,746	33,227	893,466	116,847	1,760,424	76.4	545,245	423,896	238,101	248,772
Rutland	April	413	191,374	27,721	271,451	34,551	57,553	9,930	128,131	13,303	243,468	89.7	27,983	9,588	11,229	14,737
	4 mos.	413	719,666	139,181	1,072,424	174,627	240,395	40,058	528,419	52,670	1,035,545	96.6	36,879	—41,581	—28,187	3,867
St. Louis-San Francisco	April	5,182	2,620,897	174,151	3,081,191	541,384	780,841	91,674	1,150,754	145,183	2,718,451	88.2	362,740	61,952	45,737	143,649
	4 mos.	5,211	11,159,995	717,771	12,985,543	1,999,806	2,967,921	391,731	4,661,879	576,560	10,610,998	81.7	2,374,545	1,268,566	1,132,890	27,702
Ft. Worth & Rio Grande	April	233	21,316	1,122	28,965	14,775	9,180	2,526	20,696	3,605	50,782	175.3	—21,817	—25,536	—30,584	—33,891
	4 mos.	233	103,255	4,463	134,111	60,654	37,130	9,222	82,337	14,688	204,030	152.1	—69,919	—84,571	—105,235	—139,811
St. Louis, San Francisco & Texas	April	261	74,774	603	78,647	25,749	15,207	4,851	31,162	7,196	84,165	107.0	—5,518	—9,406	—34,240	—22,473
	4 mos.	261	300,318	2,166	314,864	108,287	59,501	18,454	131,138	29,376	345,563	109.7	—30,699	—46,593	—151,151	—167,673
St. Louis Southwestern Lines	April	1,810	1,141,193	15,636	1,212,717	125,776	163,583	67,814	382,623	58,348	803,153	66.2	409,564	336,760	197,704	99,413
	4 mos.	1,866	4,334,586	61,224	4,620,638	483,822	701,015	275,240	1,575,743	229,172	3,287,680	71.2	1,332,958	1,046,183	552,464	100,668
San Diego & Arizona Eastern	April	155	25,199	4,497	30,757	9,183	8,316	1,641	13,719	3,896	37,368	121.5	—6,611	—8,350	—6,711	—14,240
	4 mos.	155	138,298	23,864	166,963	34,512	33,885	6,594	67,452	16,344	161,121	96.5	5,842	—832	3,729	—16,655
Seaboard Air Line	April	4,309	2,681,113	238,493	3,379,807	506,408	633,050	132,707	1,058,444	128,069	2,488,335	73.9	791,472	549,457	390,936	500,530
	4 mos.	4,309	10,543,997	1,285,357	13,272,820	2,020,198	2,453,843	530,945	4,312,020	515,660	10,004,409	75.4	3,268,411	2,302,202	1,601,152	1,099,640

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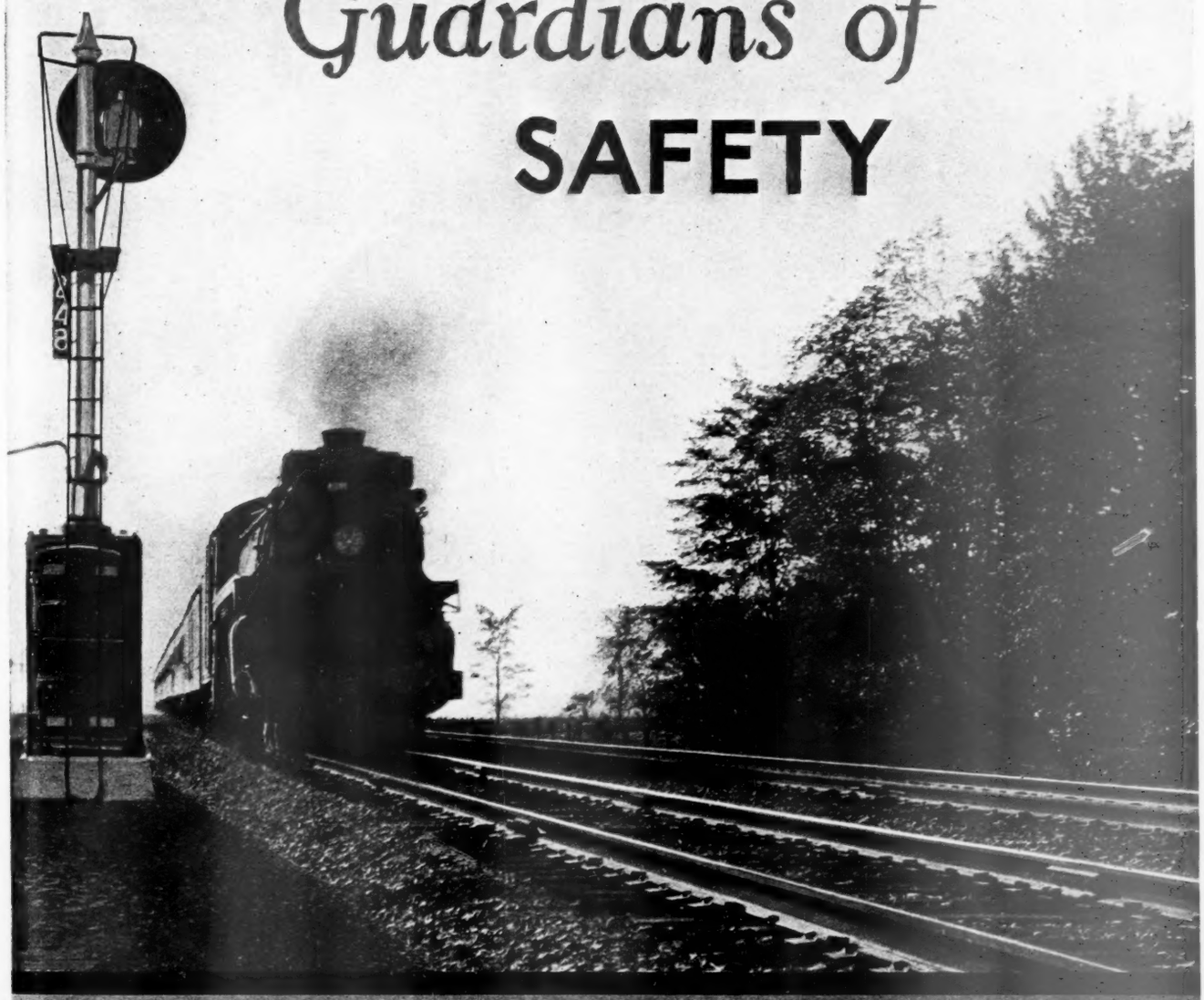
Guardians of SAFETY



Visible for the maximum distance, the modern "Union" Style H-2 Searchlight Signals provide maximum safety; meet the increasing traffic demands for present high speed requirements and make possible greater economies in train operation.

Ask our nearest district office for details.

1881 **Union Switch & Signal Co.** 1934

SWISSVALE, PA.

NEW YORK MONTREAL CHICAGO ST. LOUIS SAN FRANCISCO

Revenues and Expenses of Railways

MONTH OF APRIL AND FOUR MONTHS OF CALENDAR YEAR 1934—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues			Operating expenses						Operating ratio	Net from railway operation	Operating income	Net railway operating income	Net ry. operating income, 1933
						Maintenance of—										
			Freight	Passenger	Total (inc. misc.)	Way and structures	Equipment	Traffic	Transportation	General	Total					
Southern Railway	April	6,644	$5,474,767	$665,545	$6,772,306	$833,936	1,228,349	$141,037	$2,359,169	$241,507	$4,843,950	71.5	$1,928,356	$1,489,422	$1,268,307	$1,102,096
	4 mos.	6,644	22,399,837	2,499,469	27,269,234	3,440,983	4,749,310	558,251	9,526,707	949,477	19,379,590	71.1	7,889,644	6,080,938	5,249,521	3,227,330
Alabama Great Southern	April	315	333,299	45,924	412,009	71,955	90,825	9,253	135,288	15,187	324,897	78.9	87,112	60,095	57,233	43,625
	4 mos.	315	1,308,308	150,676	1,591,641	288,064	328,810	41,493	532,174	57,602	1,256,532	78.9	335,109	222,160	233,279	—49,244
Cinn., New Orleans & Texas Pacific	April	336	958,421	64,331	1,086,463	131,245	184,726	22,937	266,541	35,781	645,648	59.4	440,815	355,956	309,957	260,053
	4 mos.	336	3,697,120	270,027	4,208,074	499,551	722,548	91,846	1,077,340	140,238	2,550,028	60.6	1,658,046	1,361,367	1,196,897	775,627
Georgia Southern & Florida	April	397	112,867	29,314	162,674	28,266	34,365	2,098	65,225	2,664	134,812	82.9	27,862	15,124	22,627	5,449
	4 mos.	397	462,729	118,282	663,753	111,941	150,984	6,142	274,067	9,153	561,592	84.6	102,161	50,440	78,369	42,618
New Orleans & Northeastern	April	204	161,420	20,836	195,305	21,843	35,045	4,991	61,331	8,307	132,861	68.0	62,444	39,774	22,488	—28,638
	4 mos.	204	615,348	70,556	740,438	101,204	142,638	22,161	260,592	34,359	566,401	76.5	174,037	82,907	19,860	—189,996
Northern Alabama	April	99	37,633	1,526	40,895	12,426	1,307	1,238	14,810	1,614	31,395	76.8	9,500	6,357	—1,770	—5,401
	4 mos.	99	175,781	6,187	188,649	45,172	5,727	4,589	59,074	6,474	120,184	63.7	68,465	55,863	16,605	—23,253
Southern Pacific	April	8,874	6,266,937	1,297,143	8,529,531	948,091	1,483,890	270,115	3,034,734	522,772	6,423,796	75.3	2,105,735	1,275,181	963,976	72,572
	4 mos.	8,903	24,209,370	4,791,345	32,342,978	3,801,323	6,130,916	1,019,452	11,745,919	2,078,075	25,420,098	78.6	6,922,880	3,592,156	2,348,909	—1,791,433
So. Pac. Steamship Lines	April	....	345,374	11,033	368,640	15,437	129,254	14,455	237,855	20,977	417,978	113.4	—49,338	—49,868	—48,792	—82,287
	4 mos.	....	1,303,994	37,340	1,391,291	62,752	465,676	62,758	969,262	78,933	1,639,381	117.8	—248,090	—251,033	—250,275	—354,320
Texas & New Orleans	April	4,478	2,087,260	203,923	2,593,757	414,822	631,535	110,025	867,545	201,184	2,236,902	86.2	356,855	131,543	—87,855	—97,672
	4 mos.	4,478	8,037,273	759,136	10,026,711	1,531,066	2,306,498	442,825	3,456,052	805,677	8,588,709	85.7	1,438,002	537,791	—293,779	—1,026,099
Spokane, Portland & Seattle	April	552	420,456	43,766	496,861	34,350	62,910	6,128	136,807	13,791	255,836	51.5	241,025	183,256	155,441	26,942
	4 mos.	552	1,403,958	112,511	1,649,011	132,524	201,127	22,070	528,127	56,034	946,387	57.4	702,624	471,716	386,734	—88,595
Tennessee Central	April	287	158,996	4,986	173,031	29,790	25,454	5,172	57,719	10,115	128,095	74.0	44,936	40,766	30,077	7,395
	4 mos.	287	676,788	18,259	733,742	106,615	105,058	20,602	243,977	41,648	516,962	70.5	216,780	197,014	138,330	68,574
Texas & Pacific	April	1,950	1,375,106	163,730	1,761,104	181,022	316,046	64,607	523,905	108,827	1,209,519	68.7	551,585	450,529	328,456	288,260
	4 mos.	1,950	5,537,388	592,651	6,950,864	710,229	1,212,119	258,130	2,086,462	434,313	4,757,453	68.4	2,193,411	1,790,726	1,339,707	674,400
Texas Mexican	April	162	85,248	175	92,244	9,233	13,107	2,941	29,221	6,621	61,076	66.2	31,168	26,818	22,639	—12,939
	4 mos.	162	270,527	2,121	296,822	33,610	48,750	12,092	93,927	26,167	214,217	72.2	82,605	65,136	50,201	—45,801
Toledo, Peoria & Western	April	239	119,948	12	122,026	38,052	12,257	14,788	42,087	7,416	114,600	93.9	7,426	7,226	—5,479	13,783
	4 mos.	239	515,073	56	523,051	151,235	43,245	58,582	157,392	30,114	440,568	84.2	82,483	74,390	22,701	38,240
Union Pacific	April	3,767	4,289,746	375,400	5,099,289	542,155	1,208,192	120,236	1,532,044	265,786	3,731,703	73.2	1,367,586	915,825	655,116	782,802
	4 mos.	3,767	16,625,678	1,337,309	19,693,933	1,498,701	4,990,234	437,647	6,092,139	1,057,277	14,309,002	72.7	5,384,931	3,576,520	2,744,681	2,058,185
Oregon Short Line	April	2,504	1,333,073	91,692	1,527,382	223,114	265,294	31,272	482,994	90,935	1,109,912	72.7	417,470	190,869	115,551	107,494
	4 mos.	2,504	5,431,565	316,629	6,284,740	644,923	1,046,858	116,674	2,003,880	349,999	4,335,386	69.0	1,949,354	1,042,317	735,627	185,775
Oregon-Wash. R. R. & Nav. Co.	April	2,295	917,050	102,410	1,147,085	230,423	169,066	47,892	416,235	84,244	952,922	83.1	194,163	59,943	—51,191	—127,886
	4 mos.	2,295	3,966,106	321,988	4,787,955	854,783	668,776	184,728	1,717,250	333,459	3,778,685	78.9	1,009,270	472,260	88,164	—776,693
Los Angeles & Salt Lake	April	1,241	1,119,982	122,430	1,345,459	153,665	197,951	43,833	369,663	55,797	848,316	63.1	497,143	376,691	260,842	34,760
	4 mos.	1,241	4,256,335	386,942	5,029,896	599,680	775,743	165,036	1,488,817	217,743	3,348,147	66.6	1,681,749	1,199,392	724,693	92,698
St. Joseph & Grand Island	April	258	227,780	2,437	237,118	35,827	25,225	2,080	66,060	11,035	141,020	59.5	96,098	80,344	49,332	5,940
	4 mos.	258	916,721	6,762	949,870	103,254	94,260	8,593	264,351	45,179	517,725	54.5	432,145	364,137	241,879	90,385
Utah	April	111	38,447	.....	38,503	8,139	14,984	582	10,104	5,075	38,884	101.0	—381	—5,957	—19,959	—8,002
	4 mos.	111	219,220	.....	219,755	33,718	68,079	2,194	53,754	20,679	178,424	81.2	41,331	11,264	—32,960	78,314
Virginian	April	619	1,031,644	5,255	1,072,700	99,219	220,020	15,669	199,505	24,293	558,069	52.0	514,631	374,630	438,300	287,492
	4 mos.	619	4,611,088	22,876	4,809,426	396,012	856,319	64,772	848,457	98,939	2,263,053	47.1	2,546,373	1,966,366	2,220,792	1,733,628
Wabash	April	2,457	2,963,333	150,704	3,329,779	415,951	532,350	128,578	1,173,886	120,154	2,373,838	71.3	955,941	826,244	448,728	—53,288
	4 mos.	2,457	11,374,589	593,282	12,794,483	1,340,665	2,079,021	521,874	4,827,735	490,474	9,278,667	72.5	3,515,816	2,982,891	1,588,771	—554,912
Ann Arbor	April	293	281,623	2,901	291,996	23,706	56,001	10,193	113,858	9,959	213,787	73.2	78,209	61,985	41,934	11,202
	4 mos.	293	1,028,760	9,937	1,065,627	85,561	194,211	41,861	465,065	40,177	826,870	77.6	238,757	173,741	104,942	—27,369
Western Maryland	April	891	919,184	7,133	960,329	102,105	250,396	33,655	266,402	38,034	691,443	72.0	268,886	188,886	271,212	226,991
	4 mos.	891	4,537,604	27,210	4,691,953	540,289	1,045,587	132,477	1,192,265	149,644	3,062,988	65.3	1,628,965	1,328,965	1,496,628	1,041,091
Western Pacific	April	1,213	856,831	21,315	915,685	122,899	153,347	49,853	317,046	35,315	699,407	76.4	216,278	147,219	122,171	1,545
	4 mos.	1,213	3,070,739	58,269	3,282,504	442,984	606,772	205,701	1,227,223	142,634	2,707,895	82.5	574,609	298,075	232,273	—310,974
Wheeling & Lake Erie	April	511	882,320	1,510	935,112	92,031	305,443	27,992	283,922	27,617	736,951	78.8	198,161	120,142	97,498	26,763
	4 mos.	511	3,631,728	6,604	3,833,374	307,385	1,081,602	111,311	1,135,358	111,993	2,747,420	71.7	1,085,954	729,635	667,672	139,956
Wichita Falls & Southern	April	203	42,606	51	47,112	9,709	6,794	1,848	12,997	2,925	34,273	72.75	12,839	9,928	6,827	5,009
	4 mos.	203	159,031	179	178,619	38,195	26,236	6,938	52,024	13,133	136,526	76.43	42,093	30,513	17,144	10,963